DECEMBER 12, 1931

Railway Age

Founded In 1856

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WEYERHAEUSER FOREST PRODUCTS

CARS insulated with Balsam-Wool are *lighter*—cost less to haul. ¶ They are more efficient—cost less to operate. ¶ They make possible permanent operating economy that is more important now than ever before.

WOOD CONVERSION COMPANY

Mills at Cloquet, Minnesota

Railroad Sales Offices: CHICAGO—360 No. Michigan Ave.; NEW YORK—3107 Chanin Bldg.; DETROIT—515 Stephenson Bldg.; SAN FRANCISCO—149 California St.

OXWELDING and CUTTING

for all-around economy

THE money-saving applications of oxy-acetylene welding and cutting are so numerous and so varied that scarcely any one man in a railroad organization can know them all.

Realizing this, railroads which are getting the most out of the oxy-acetylene process have turned for its efficient utilization to a group of specialists in railroad welding and cutting practice.

This group consists of the engineers, supervisors, and service operators of The Oxweld Railroad Service Company, an organization which has served American railroads for nineteen years. Training railroads' own employees in the best methods of welding and cutting, overseeing their work, and supplying them with the best materials and facilities, this service has proved to be of increasing value to the majority of Class I railroads, year after year.

THE OXWELD RAILROAD SERVICE COMPANY

Unit of Union Carbide and Carbon Corporation

UCC

NEW YORK, Carbide and Carbon Building
CHICAGO, Carbide and Carbon Building

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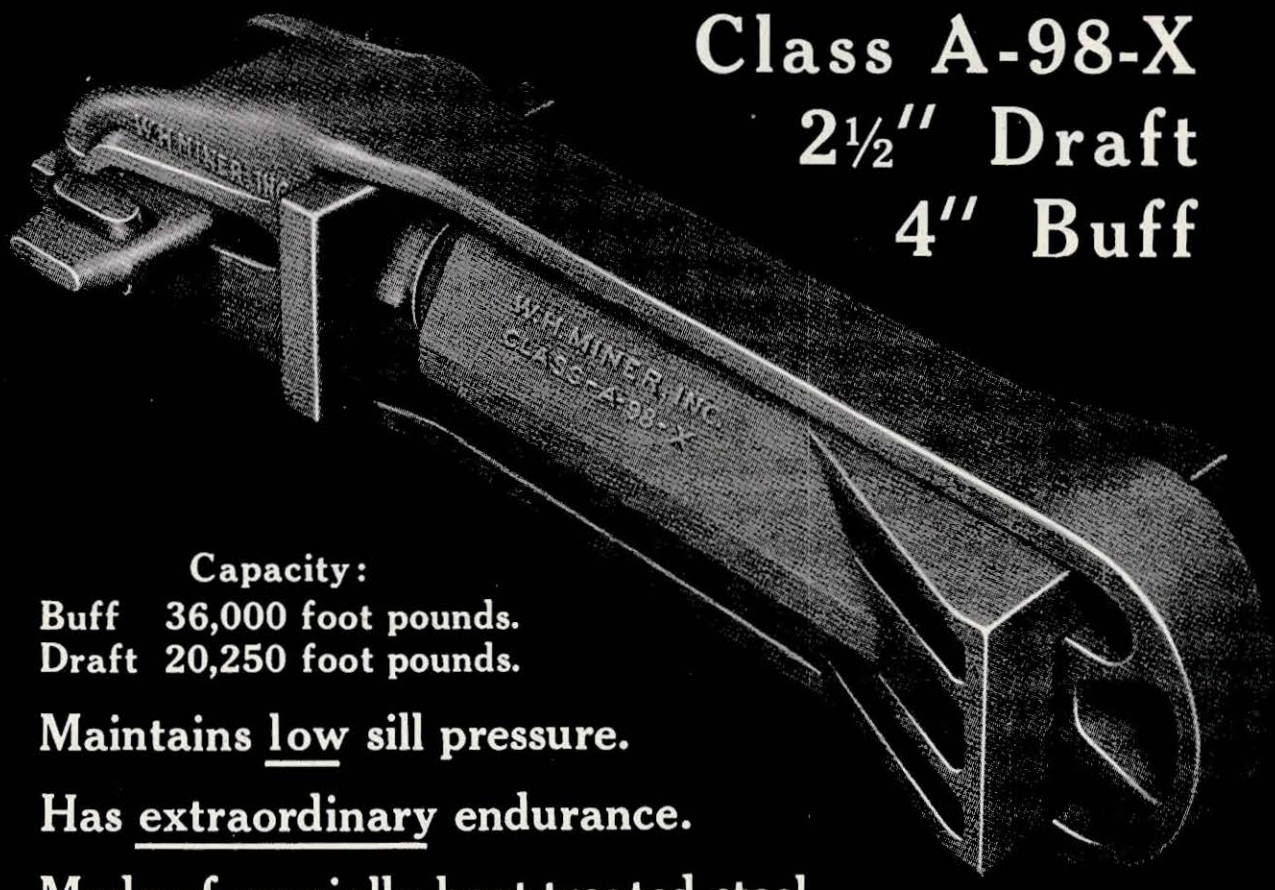
Address communications to 30 Church St., New York City.

MINER

Long Travel Draft Gear



Class A-98-X
2½" Draft
4" Buff

Capacity:
Buff 36,000 foot pounds.
Draft 20,250 foot pounds.

Maintains low sill pressure.

Has extraordinary endurance.

Made of specially heat treated steel.

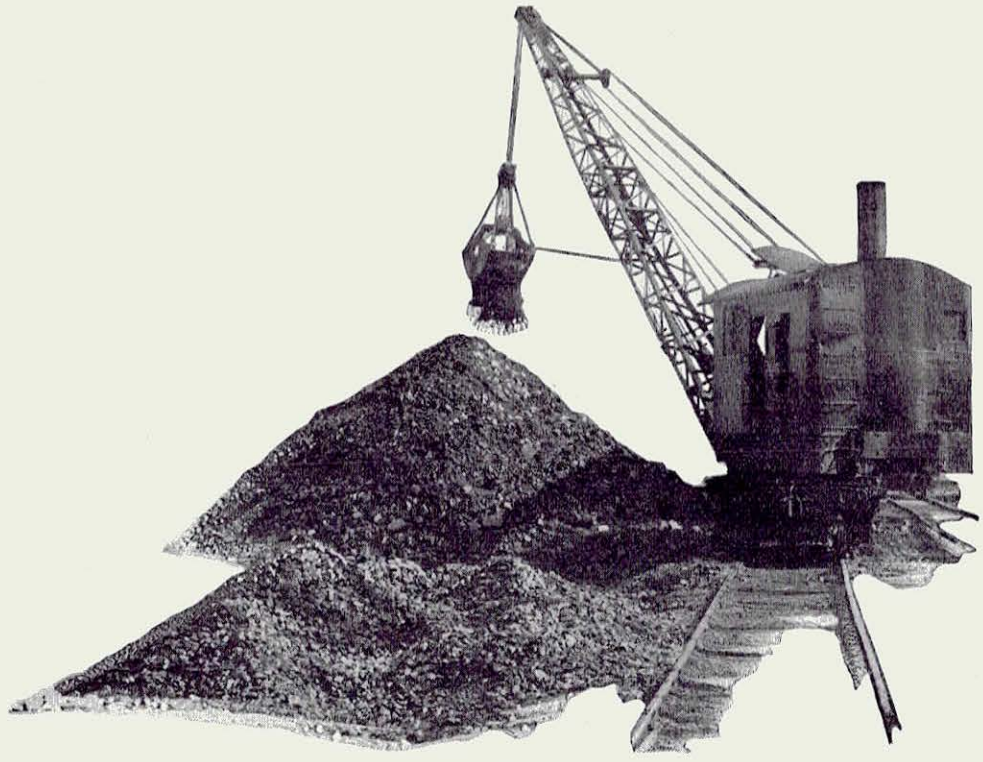
Applicable to A. R. A. standard car structure.

Perfect recoil and train handling characteristics.

One friction system of only nine parts does all the work.

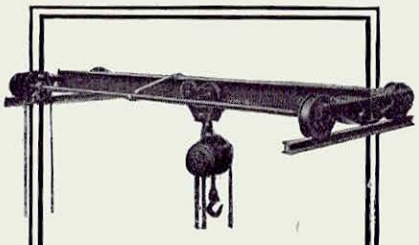
Most economical and efficient device for obtaining maximum shock prevention.

W. H. MINER, INC. CHICAGO



A Crane's Cost Is Important

Its Price Is Secondary



Overhead hand traveling cranes, pillar cranes or jib cranes are a practical necessity in the well planned engine room, receiving room or shipping platform.

Industrial Brownhoist has built these cranes for many years in a complete range of types and sizes and for hand or electric power.

A low price is no assurance that a crane purchased on this low first cost basis will be the most economical to own. Neither does a high price necessarily carry with it such a guarantee.

Far sighted executives buy locomotive cranes solely on performance—the unit cost at which they will handle materials over a long period of time. Because Industrial Brownhoist has satisfied a steadily growing number of such crane buyers for fifty years, repeat orders have made possible prices which are often no higher than that of other makes.

When you are considering ways to lower production costs, let us help you with one of its most important items—materials handling. Industrial Brownhoist cranes are built on railroad or crawler trucks and in capacities ranging from 6 to 200 tons.

Industrial Brownhoist Corporation, General Offices, Cleveland, Ohio

District Offices: New York, Philadelphia, Pittsburgh, Detroit, Chicago, New Orleans, San Francisco, Cleveland.

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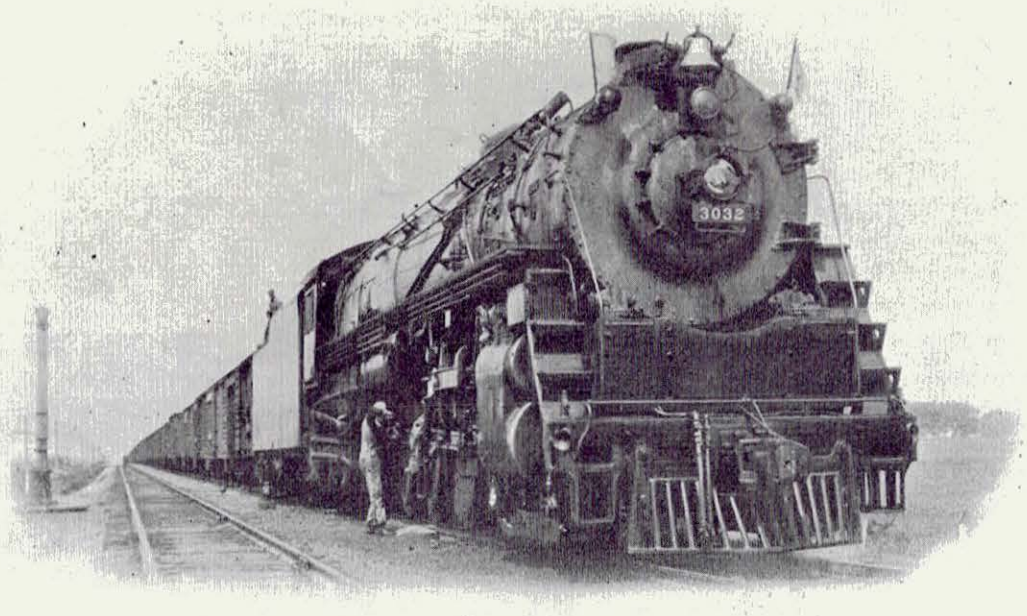

The Locomotive's Part in Transportation Manufacture

THE business of a railroad is the manufacture of transportation, and it is the locomotive that changes railroading from a static to a dynamic operation. In other words, the locomotive is the one factor that really earns money.

Present-day conditions require high speed and maximum efficiency in transportation—demands that call for strictly modern equipment. Big-wheeled, big-boilered locomotives, specially designed for the service, are the only ones which can be depended upon to successfully and economically handle the long, high speed runs with heavy tonnages that characterize up-to-date railroading.

Wherever used, such power is demonstrating that . . . . .

It takes Modern Locomotives to make money these days!

THE BALDWIN LOCOMOTIVE WORKS 1831 1931

THE
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LOCOMOTIVE WORKS
PHILADELPHIA

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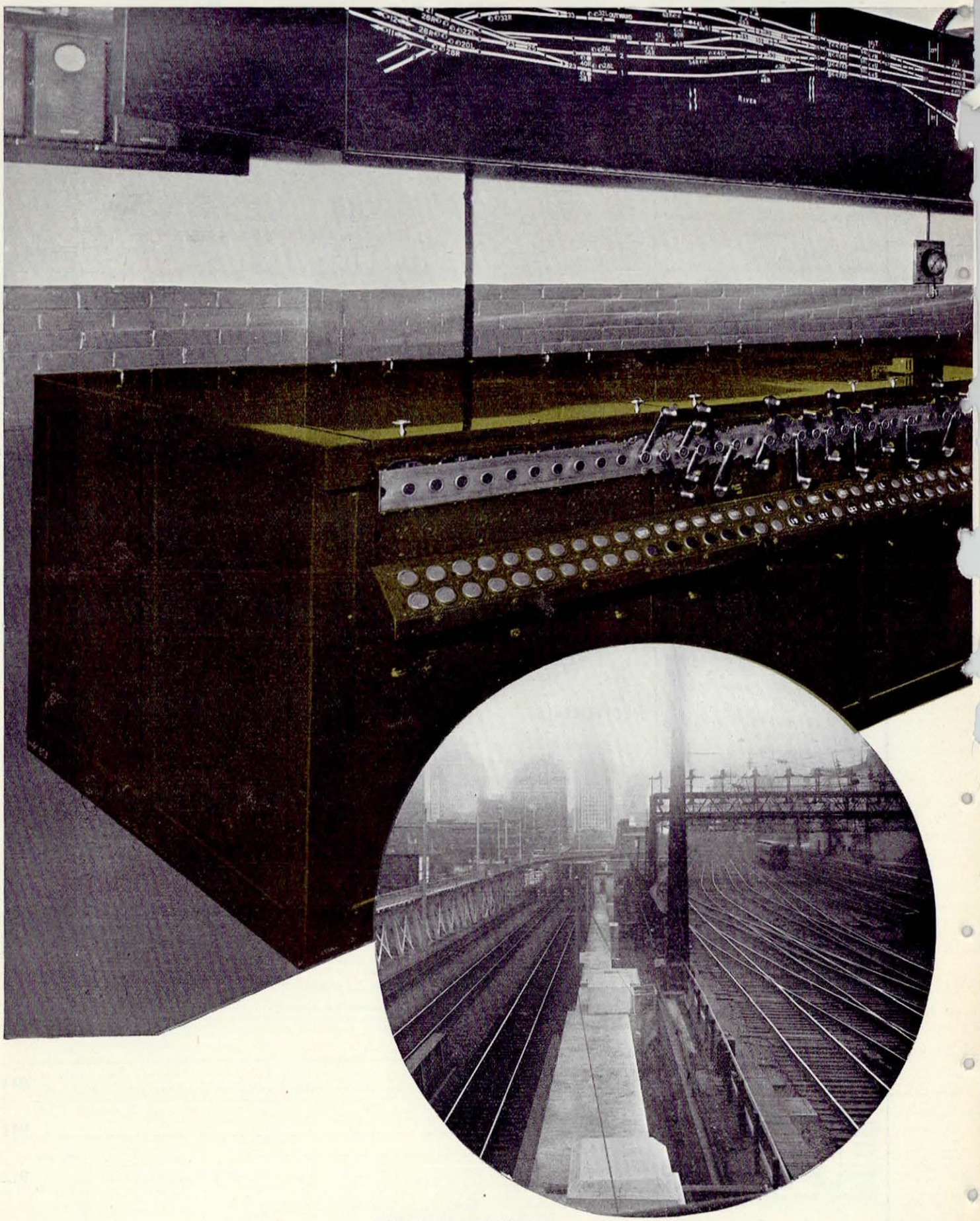


DISTRICT OFFICES

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

Consolidation of Interlockings featured in *Philadelphia* Terminal

BECAUSE of its flexibility and speed of operation the "Union" Electro-Pneumatic Interlocking System was selected, after careful study, for the new Philadelphia Terminal of the Pennsylvania R. R. Where formerly a total of sixteen interlocking plants were required, the area will be served by four.

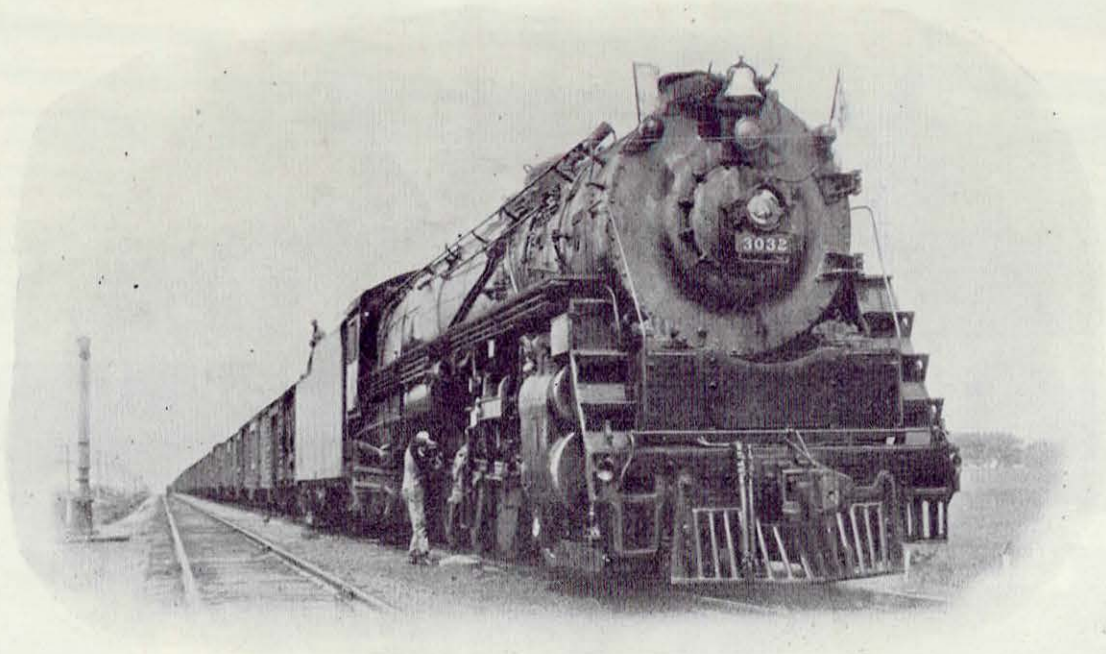
Combined, in effect, as a unit system, the four new interlockings will simplify train operation. One man can control a larger territory and handle more traffic with greater efficiency. Tracks will be signaled for either direction operation of trains without train orders.

Long service life; compactness of design, permitting many functions to be operated from one lever; adaptability to large terminal interlockings as well as small outlying plants; and many other features, explain the widespread use of the "Union" Electro-Pneumatic Interlocking System.

Our nearest district office representatives will be glad to suggest how a "Union" Electro-Pneumatic Interlocking System can reduce costs and increase the operating efficiency on your road. There is no obligation.

1881 Union Switch & Signal Co. 1931

SWISSVALE, PA.



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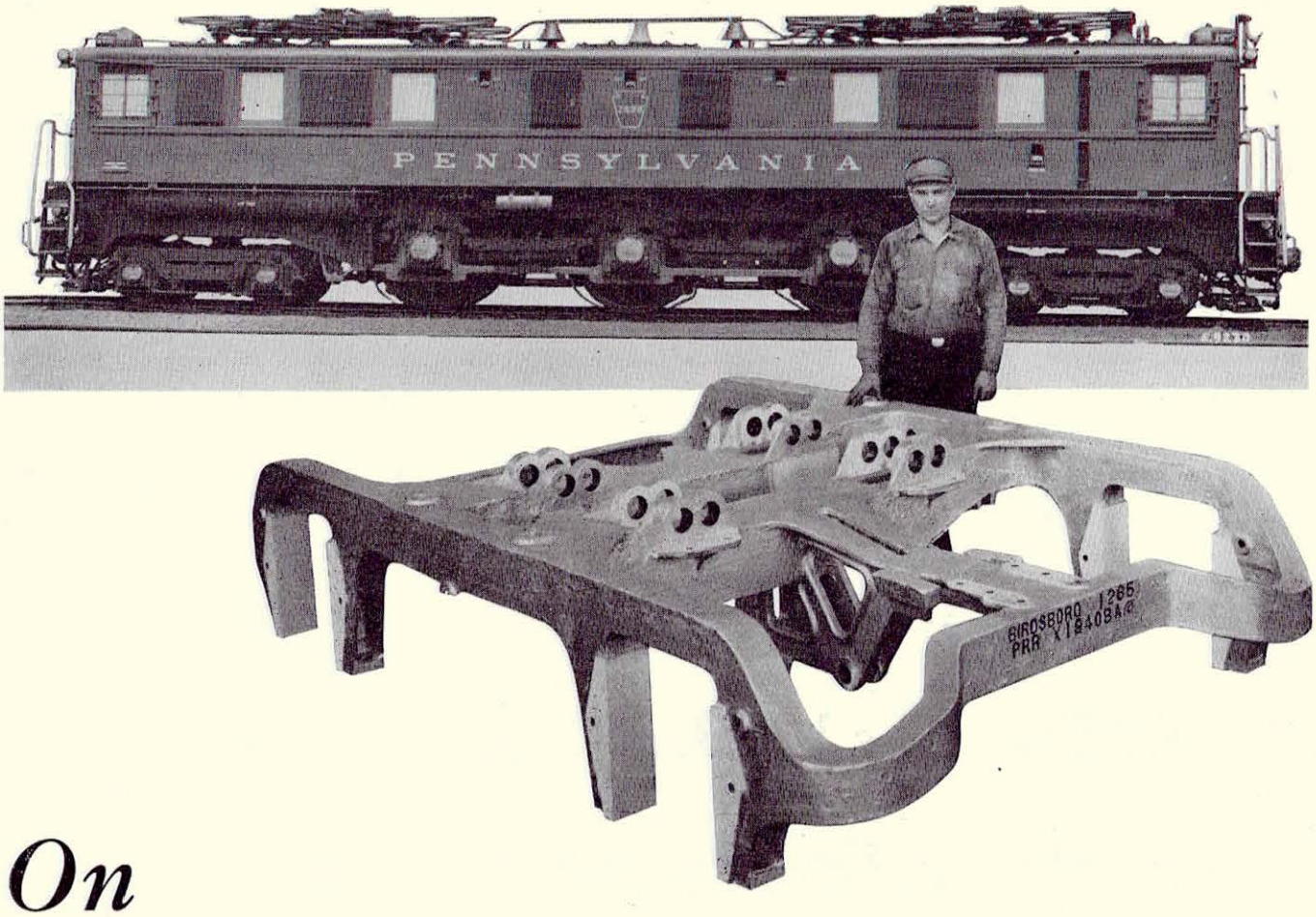


On PENNSYLVANIA'S New Electrics...

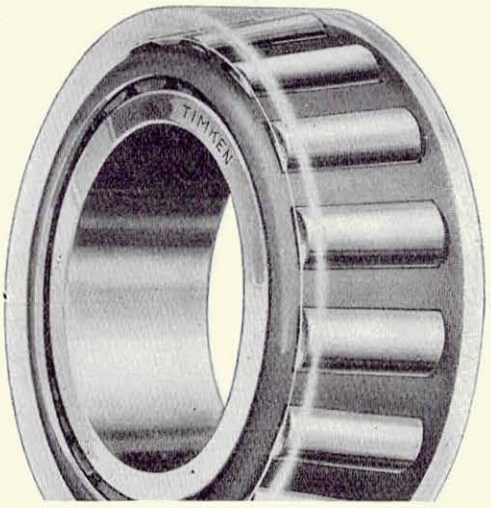
This is another of Birdsboro's castings added to those already in use on electrified 'roads. The engine truck castings pictured will be used under electric locomotives.

Built for high-speed freight and passenger service on the Pennsylvania System's newly electrified New York to Washington division, these modern electric locomotives will serve to greatly reduce the actual running time between these designated points . . . With increased speed comes the necessity for higher factors of operative safety throughout—plus paramount quality of material and construction. Cast in one unit this frame and members possess the soundness, uniformity and strength characteristic of all Birdsboro steel castings.

With years of railroad foundry experience distributed over the many nationally famed 'roads, we pride ourselves in assisting with the advent of the locomotive's electrification.

BIRDSBORO
STEEL FOUNDRY AND MACHINE COMPANY
DESIGNERS AND BUILDERS
BIRDSBORO, PENNSYLVANIA

The HEISLER 60-ton oil-electric locomotive can exert a tractive force of more than 47,000 lbs. The builders, Heisler Locomotive Works, Erie, Pa., use Timkens to assure adequate protection for shafts and gears against friction, radial-thrust loads and misalignment in the heavy-duty switching service for which it is designed.



THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

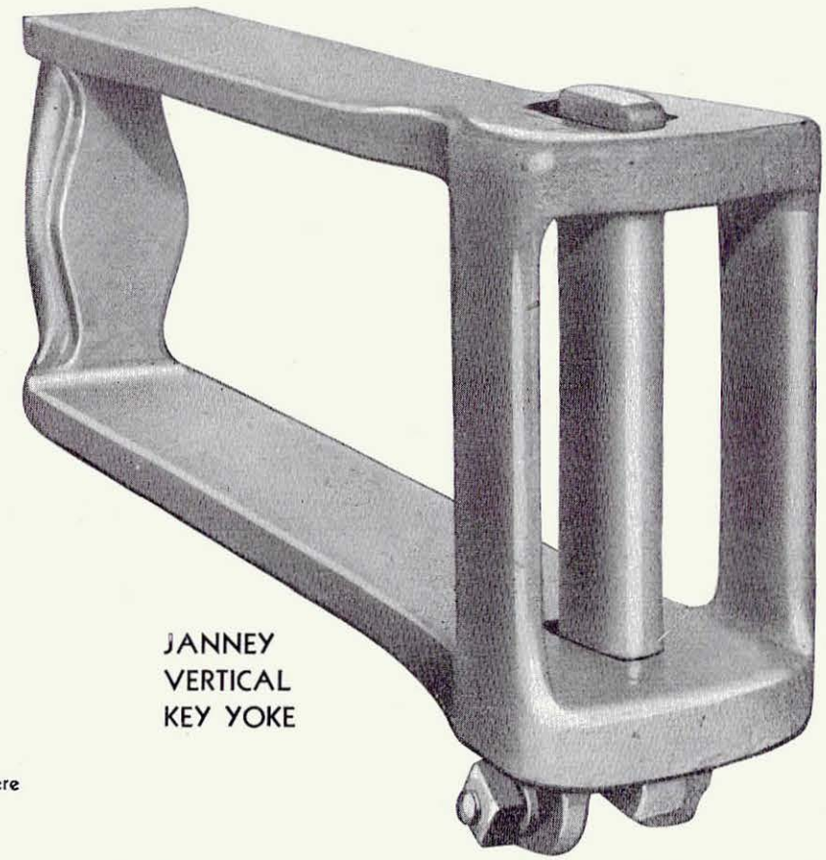
TIMKEN *Tapered Roller* BEARINGS

YOKE MAINTENANCE

14 MONTHS was found by one railroad to be the life of yoke rivets. Their replacements necessitated 10 distinct operations before the car was again in good order.

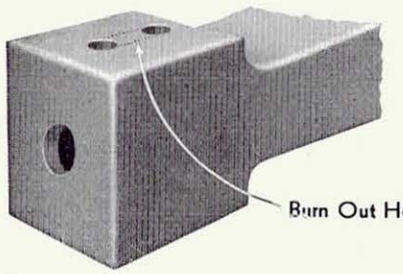
Many roads have eliminated yoke maintenance by the application of Janney Vertical Key Yokes. This yoke can be used without change to existing center sill construction and does not even require new couplers, while it does provide a satisfactory flexible connection between couplers and draft gears.

Railroads have bought large numbers of Janney Vertical Key Yokes and most of these have gone to replace riveted yokes, eliminating what previously had been a considerable item of maintenance.



JANNEY VERTICAL KEY YOKE

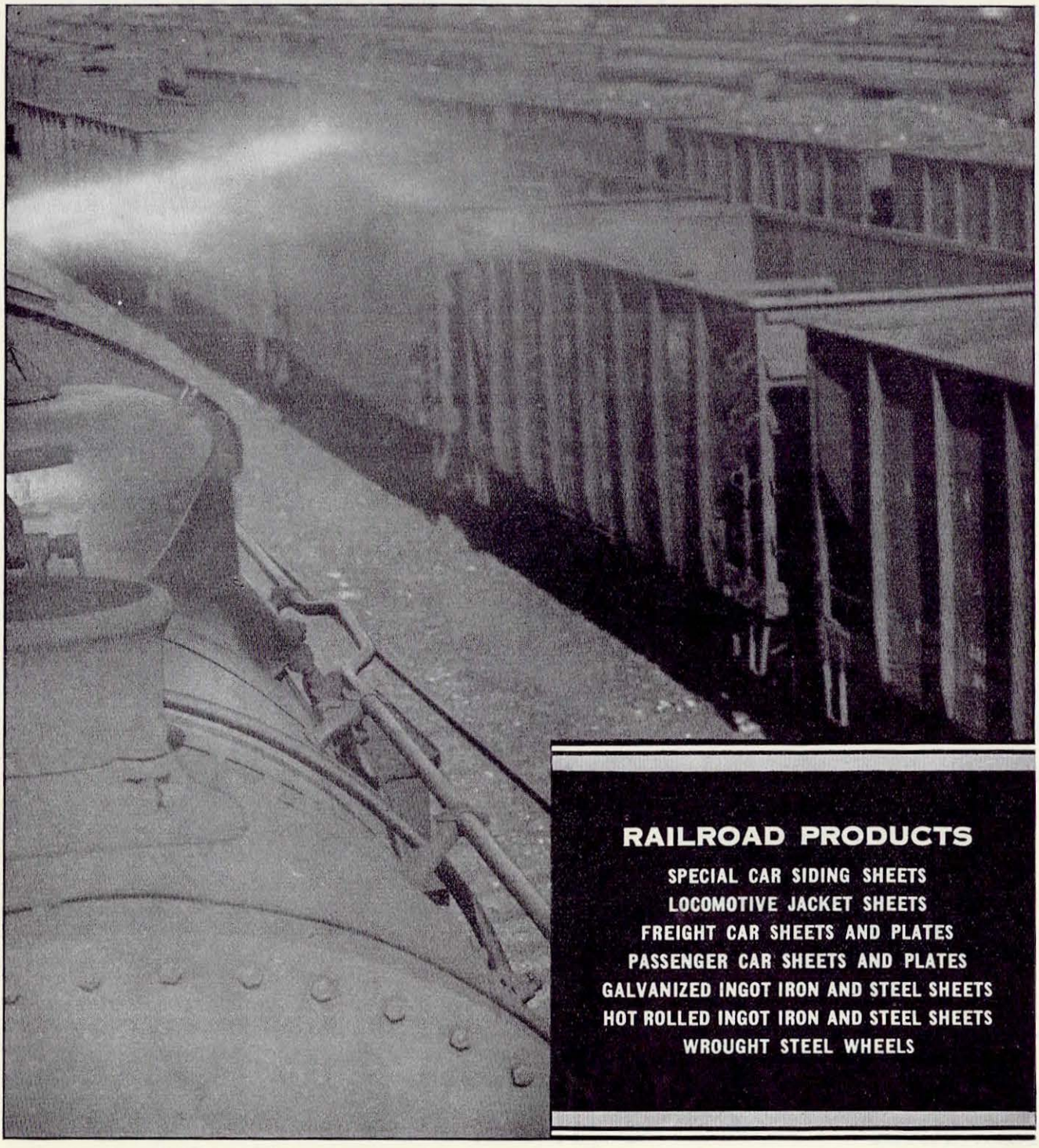
Used with old couplers



AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

TAP THESE HIDDEN PROFITS IN YOUR ROLLING STOCK



RAILROAD PRODUCTS

SPECIAL CAR SIDING SHEETS
LOCOMOTIVE JACKET SHEETS
FREIGHT CAR SHEETS AND PLATES
PASSENGER CAR SHEETS AND PLATES
GALVANIZED INGOT IRON AND STEEL SHEETS
HOT ROLLED INGOT IRON AND STEEL SHEETS
WROUGHT STEEL WHEELS

MADE BY
CONTINUOUS PROCESS

"Pioneers in Continuous Sheet Rolling"

Your investment in sheets, plates and wheels can be made to yield greater profits. Here is a way that many railroads have found inexpensive, and free from speculative risk.

PERHAPS you haven't associated increased earnings for your railroad with the iron and steel you buy for equipment and construction. Yet, every dollar saved by efficiency in the shop, or by longer service and less frequent shoppings of your equipment, means greater profits for your road.

You can multiply this dollar many times over a long period by using Armco sheets, plates and wrought steel wheels. Each of these carefully made products is designed to give the longest service at the lowest possible cost. And this includes both first cost and maintenance while in service.

We have studied the metal needs of railroads for many years. Firsthand knowledge of users' needs has convinced us that no one grade of metal will meet every requirement *economically*.

That is why you will find so many different grades of iron and steel among Armco products—smooth, cold-rolled, rust-resisting sheets for locomotive jackets; dense, smooth-surfaced sheets for passenger train cars; durable iron plates for freight train cars; lasting galvanized sheets for refrigerator cars and many other uses; and wrought steel wheels that meet the highest standards of safety, efficiency and dependable performance.

We shall be glad to explain more fully how Armco railroad products can save you both time and money. Just write to the nearest office.

ON THE AIR

every Monday night
the ARMCO CONCERT BAND
thru WLW—700 kc.
W8XAL—6060 kc. (short wave)

9 o'clock—Eastern Time
8 o'clock—Central Time
7 o'clock—Mountain Time
6 o'clock—Pacific Time

ARMCO RAILROAD SALES CO.

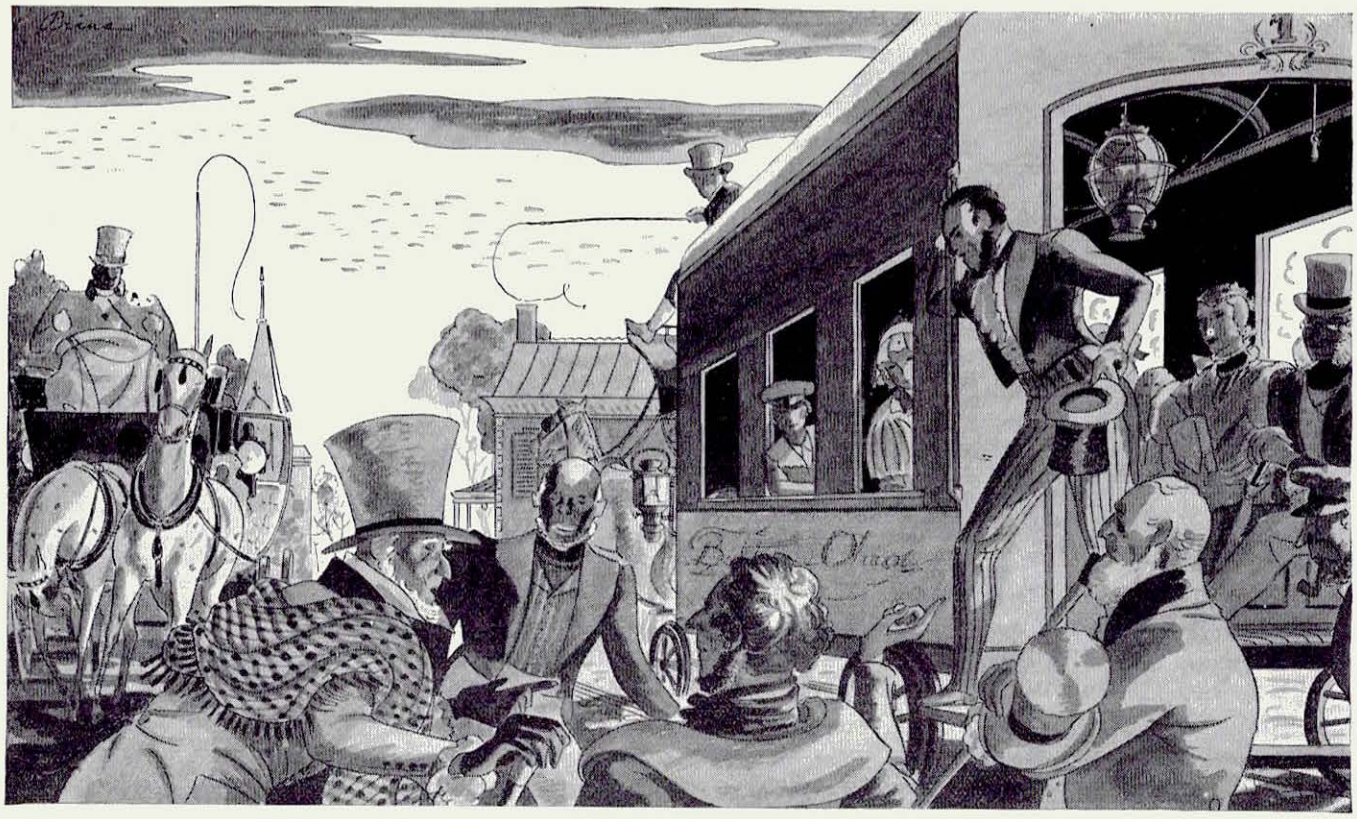
Executive Offices: MIDDLETOWN, OHIO

DISTRICT OFFICES:

New York . Chicago . Philadelphia . Cleveland . St. Louis

ARMCO
IRON AND STEEL
SHEETS FOR EXACTING RAILROAD USES PLATES

"RIDE ON THAT THING . . . UPON MY SOUL, NO!"



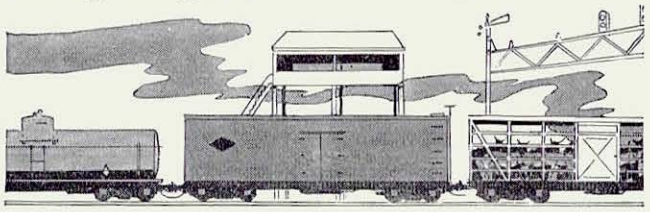
The aged John Randolph of Virginia, famous American statesman and Minister to Russia, refused to ride on the early horse-drawn railroad. He was suspicious and distrustful of the new-fangled contraption that went 13 miles in 65 minutes.

• • •

WE SMILE at John Randolph's fears because today we do not question the reliability of our railroads. Without railroads the whole aspect of our civilization would be changed. We depend upon them for the very essentials of life . . . food and shelter and clothing. In our dependence upon railroad transportation we also depend upon the General American Tank Car Corporation . . . the railroads' foremost aid. Railroads throughout the country, engaged upon the serious business of providing for a nation's needs, know they can rely upon General American for special freight cars to supplement their service whenever necessary.

This enables most railroads to operate more economically than would be possible if they had to maintain their own cars, whose use fluctuates greatly according to seasonal demand. Many railroads operate only enough special cars (such as refrigerator or tank) to take care of their daily needs. For large seasonal shipments they call upon General American to supply the additional carriers. In this way, they eliminate a wasteful 365 day investment and maintenance in equipment that may be used only 30 or 60 days. And General American, supplying first one road and then another, keeps its fleet busy throughout the year.

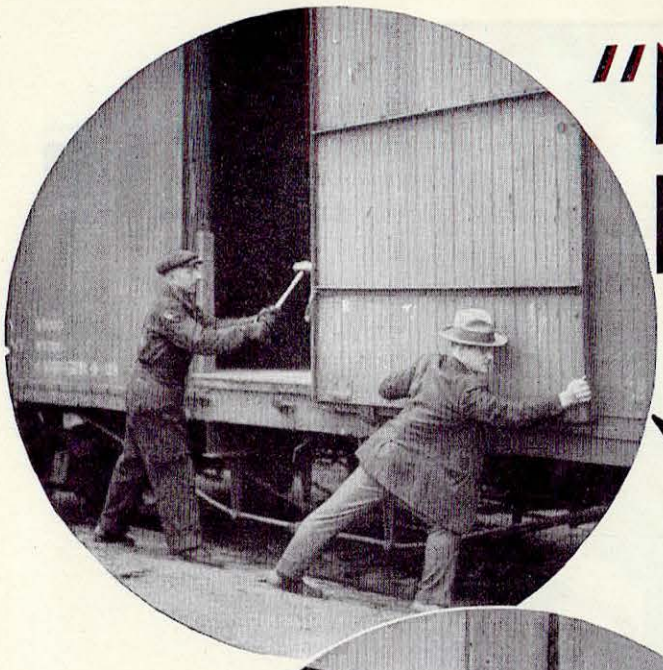
And in this way does General American aid these railroads, which today are the most efficient mode of transportation man has ever known. In addition to leasing cars to railroads and private shippers, General American builds *every type* of railroad freight car. Its diversified activity also includes the operation of a large public terminal for the handling and storage of bulk liquids and the maintenance of an extensive European freight transportation system. *Address Continental Illinois Bank Building, Chicago, Ill.*



GENERAL AMERICAN TANK CAR CORPORATION

BUILDERS OF ALL TYPES OF RAILROAD FREIGHT CARS

THIS IS ONE OF OUR NATIONAL MAGAZINE ADVERTISEMENTS TELLING PEOPLE THAT OUR RAILROADS ARE THE MOST EFFICIENT MEANS OF TRANSPORTATION MAN HAS EVER KNOWN



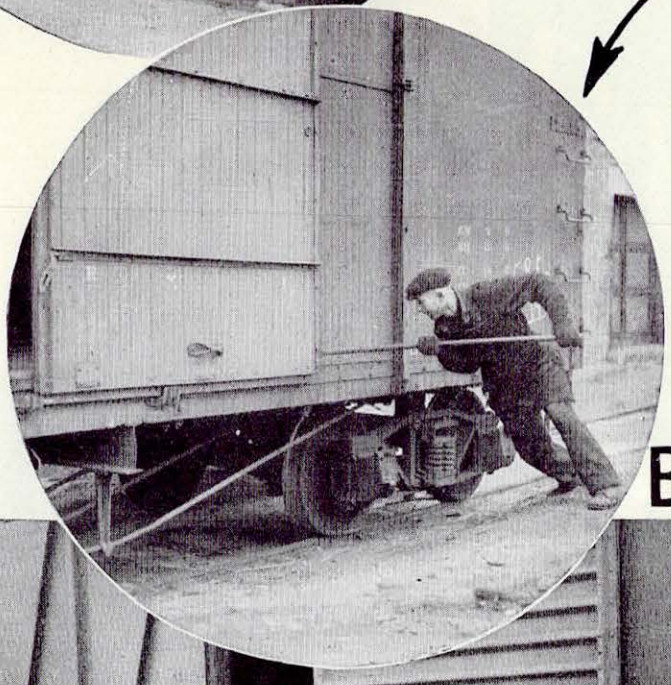
"Nothing Rolls Like a Ball"

You can get away from these conditions on Box and Automobile Cars . . . . . .

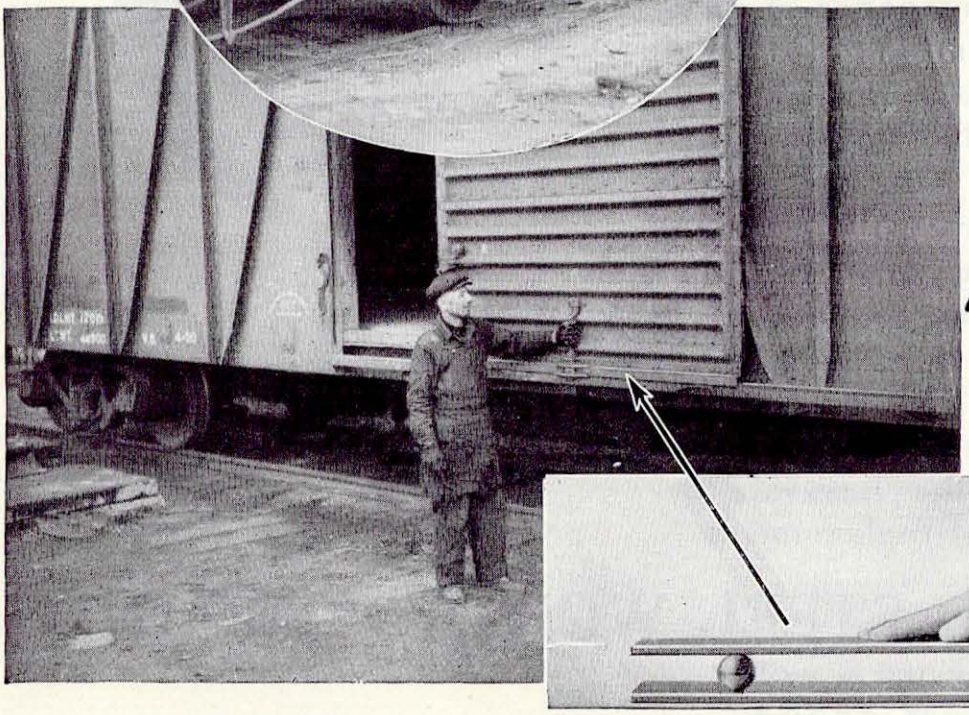
by using

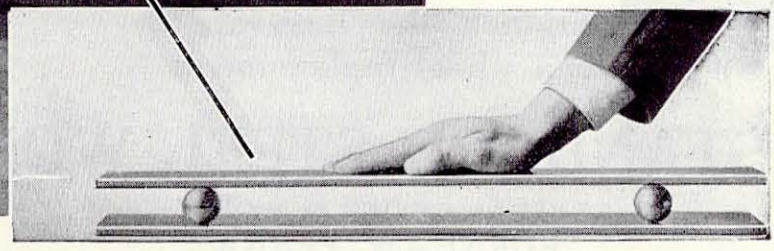
REO

Ball-Bearing Door Fixtures



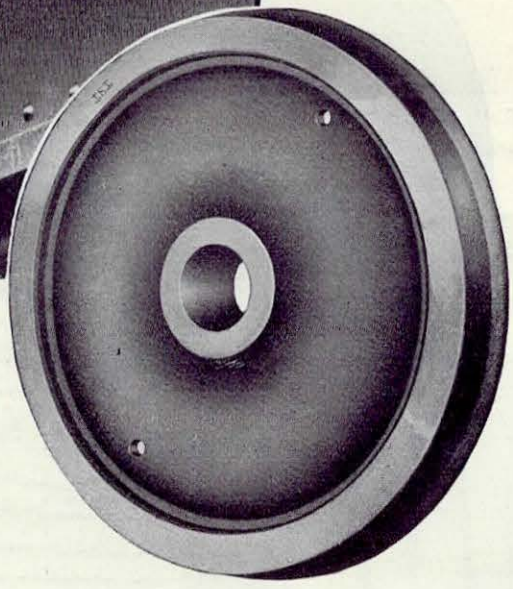
In Use on 36 Railroads





CHICAGO RAILWAY EQUIPMENT CO.
CHICAGO, ILLINOIS

EWING GALLOWAY



Perfect maintenance of schedules depends not only on the human factor but also on the system and the equipment. "Standard" Q.T. wheels are showing greatly superior structural strength and wear. Their use simplifies part of the equipment problem — they keep rolling stock in operation longer and lengthen the intervals between wheel replacements.

Tires
Rolled Wheels
Steel Tired Wheels
Forgings
Steel Castings
Billets

STANDARD STEEL WORKS COMPANY

GENERAL OFFICE & WORKS:
BURNHAM, PENNA.

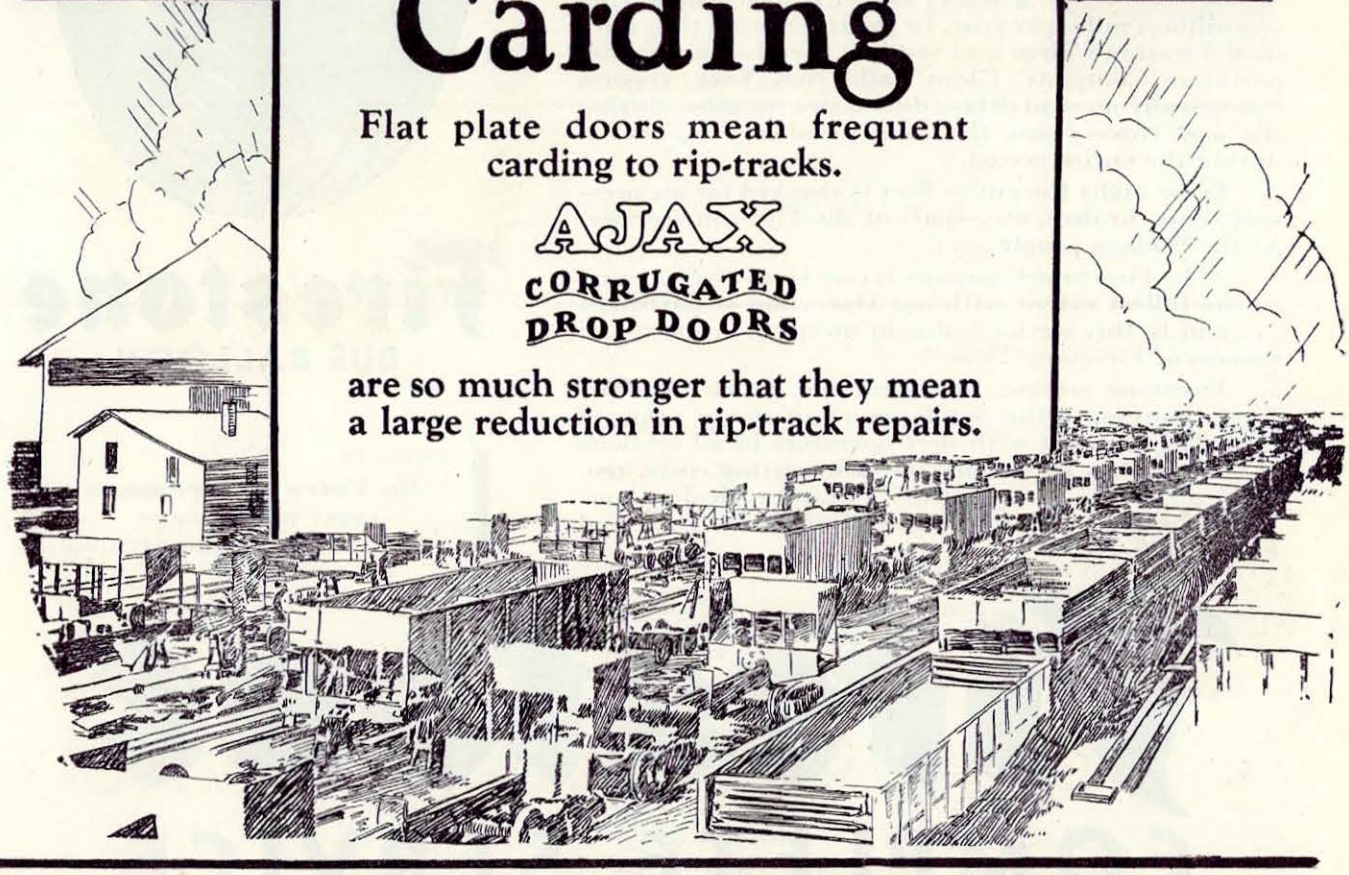
CHICAGO NEW YORK ST. LOUIS AKRON PHILADELPHIA PORTLAND SAN FRANCISCO

Expensive Carding

Flat plate doors mean frequent carding to rip-tracks.

AJAX
CORRUGATED
DROP DOORS

are so much stronger that they mean a large reduction in rip-track repairs.



UNION METAL PRODUCTS COMPANY

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The Hudson Transportation Company has a fleet of 24 buses all equipped with Firestone Gum-Dipped Tires.

3,000,000 MILES *with only* 11 *Road Delays*

TWENTY-FOUR buses, operating one million miles per year. In the three years they have used Firestone Tires and service, the Hudson Transportation Company, Glens Falls, New York, reports "practically no road delays due to tire troubles, during the past three years, the total number being eleven during the entire period."

Every night the entire fleet is checked for air pressure, cuts, bruises, etc.—part of the Firestone service. As the Hudson people say:

"The Firestone Company is ever ready to cooperate to the fullest extent with our Operation Department . . . and to this service is due in no small measure the success of Firestone Tires."

Firestone service, like Firestone Truck and Bus Tires, represents the development of many years of close daily contact with fleet operators in all sections of the country. It can cut YOUR operating costs, too. Find out. Ask your nearest Firestone dealer *how*. You'll be glad you investigated Firestone Tires and Firestone Service.

Firestone
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Zeolite Plants Effect Economies
Southern Pacific show
$400,000 saved in One Year
Engineering & Main
graphs in this article are typical
A typical installation of Permutit Water Softening Equipment
ipment

AN astounding record of 16 Zeolite Plant installations on the Southern Pacific . . . how these remarkable installations, which cost but $140,000, effected savings amounting to approximately $400,000 . . . is accurately reported in this fact-filled article from a recent issue of Railway Engineering and Maintenance.

Learn how this tremendous saving was accomplished . . . how additional benefits were secured by this safe, certain and inexpensive water treatment. A reprint of the article, "Zeolite Plants Effect Economies," is yours for the asking. It may point the way to similar savings for your road. . . .

A note on your letterhead will bring a complimentary copy to you. There's no cost or obligation entailed. Give your secretary the necessary instructions now, and we'll speed this valuable information on its way.

Send for your copy
TODAY

"Zeolite Plants Effect Economies" gives the records of sixteen installations on the Southern Pacific, shows the marked improvement in water treated and the large savings in locomotive boiler maintenance and repair.

THE PERMUTIT COMPANY
440 Fourth Avenue, New York, N. Y.

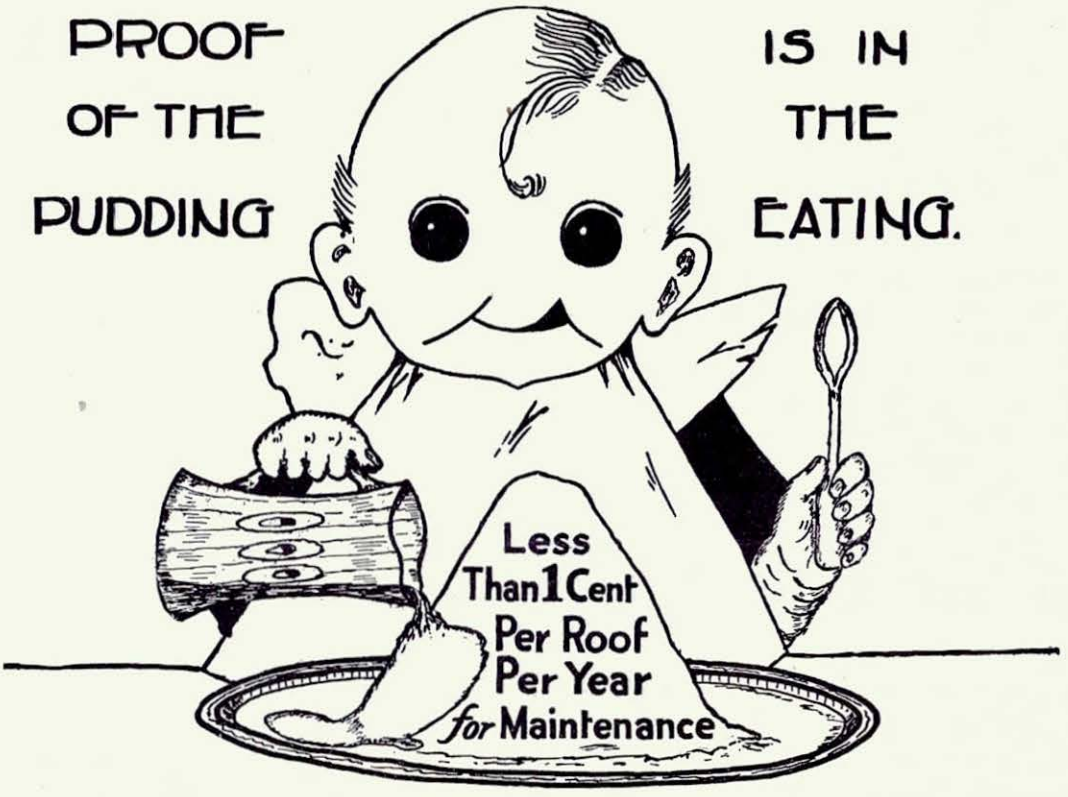
Manufacturers of Industrial and Household Zeolite Water Softeners —Hot and Cold Lime Soda, Lime-Barium Water Softeners—Sand Filters—Iron, Oil and Manganese Removing Filters—Continuous Boiler Blowoff Equipment—Ranarex CO_2 Indicators and Recorders—Other Power Plant and Water Treating Specialties.

Permutit

Water Treating Equipment

TWENTY-THREE SALES OFFICES THROUGHOUT THE UNITED STATES

LONG LIFE LOW MAINTENANCE



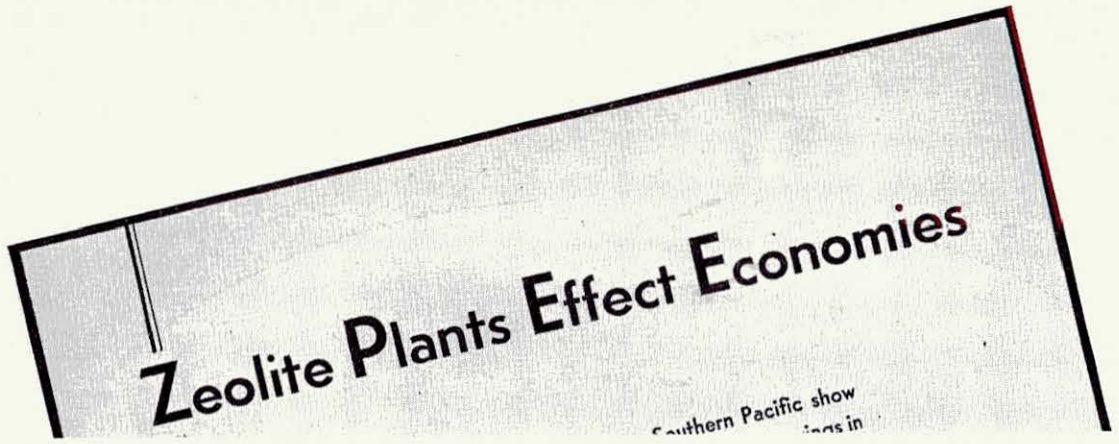
WHEN it comes to proving the long life and low maintenance of the Dry Lading Roofs, the best evidence you can get is years of actual records.

Study this one. The cost of roof maintenance, from 1913 to 1930 inclusive on 30,000 Canadian National cars equipped with Dry Lading Roofs, amounted to $4519.49. The average maintenance expense, during this 18 year period, amounted to less than one cent per roof per year.

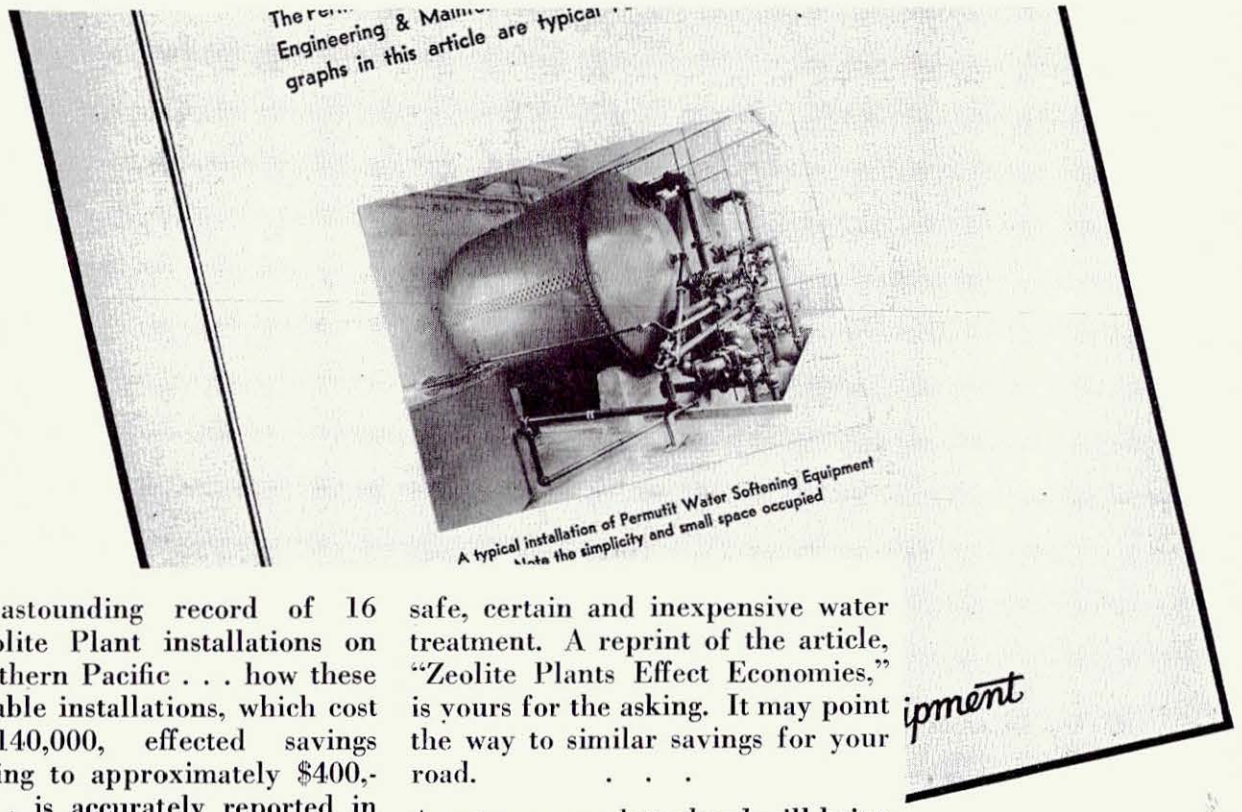
This performance record, extending over 18 years and covering 30,000 cars, demonstrates without question the great economic value of the Universal Dry Lading Roof.

And the reward is pretty sweet.

Hutchins Car Roofing Company



$400,000 saved in One Year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Permutit *Water Treating Equipment*

TWENTY-THREE SALES OFFICES THROUGHOUT THE UNITED STATES

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Make Good Track *Better*

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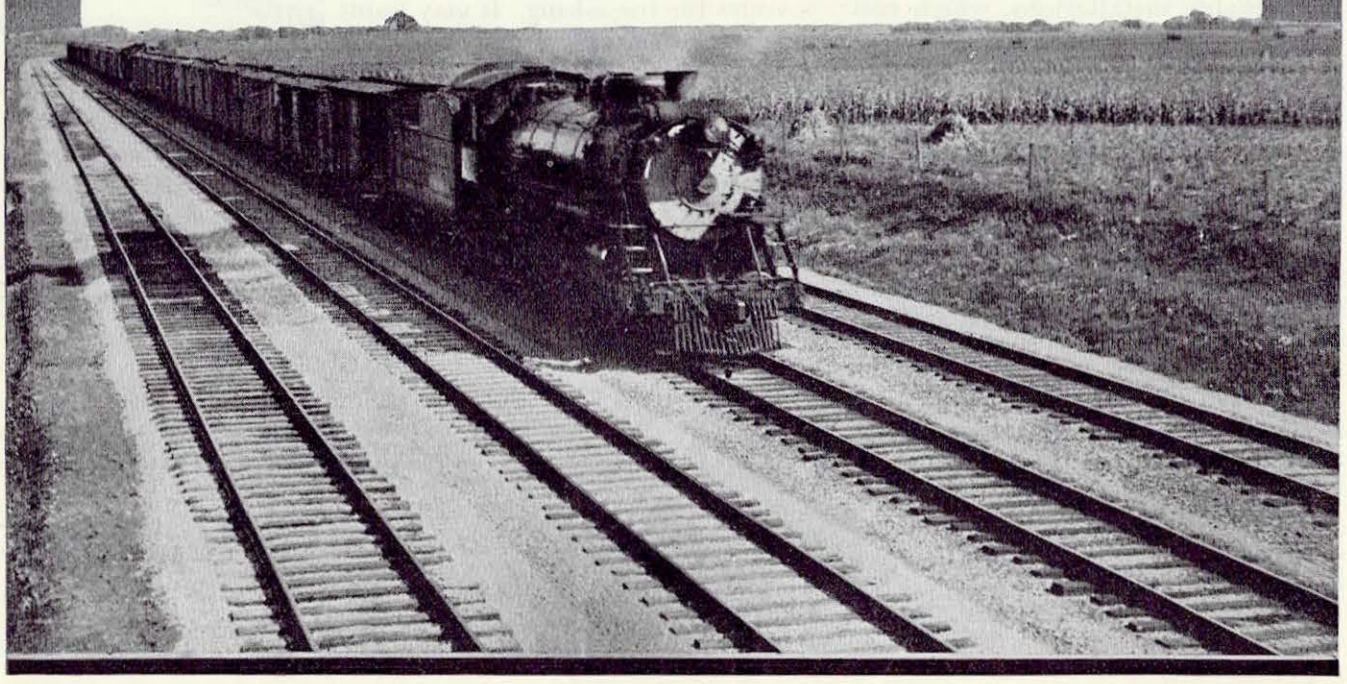


Teletype evens up work and lessens errors for railway

Reduces troublesome peaks in freight office by sending orders and bills in faster time

IN keeping with its policy of promoting greater efficiency wherever possible, the Chicago & North Western Railway recently installed Teletypewriter service to hasten the transmission of special orders and out-bound freight bills between the Jackson street freight station in downtown Milwaukee and the West Allis freight yards, 8 miles away. At each end of the system is a page type sending and receiving Teletype machine.

Says an official of the company: "Formerly we telephoned orders and sent freight bills back and forth either by a messenger in a motor car or by train crews. The irregularity of handling papers in this manner allowed bills from the West Allis station to accumulate, usually at the last minute.

"As West Allis is only one of several freight yards reporting to the general freight office, this piling up of its work meant that the clerks had to make a special effort to get it out on time. This forced speed might easily result in costly errors, and cause a general slowing up of the work in the office at other times.

"The Teletypewriter System enables us to keep a steady flow of work going to and from West Allis, and permits the clerks to take work from the machines whenever they may have slack time on their hands. This more general distribution of work is of great value in reducing the peak periods that occured when we depended on messenger delivery.

"The average amount of work handled by the Teletype machines is about 15 special orders a day . . . which can now be sent over the system without the abbreviation formerly necessary, and an average of about 30 freight bills daily."

Special orders and freight bills typed on this Teletype machine at West Allis, Wis., are instantaneously and accurately reproduced at the Jackson street freight station in Milwaukee, 8 miles away.

The Chicago & North Western is but one of many leading roads which have found the Teletypewriter unexcelled for exchanging orders and bills between freight stations, for general inter-city message traffic, for handling train announcements in terminals, for dispatching information from yard offices to switch towers, for reporting car arrivals to trace bureaus, and for sending consists, wheel reports and car diversion orders.

Today, more than 65,000 Teletype machines, requiring considerably more than a million miles of circuit, are in constant use by telephone and telegraph companies, press associations, police and fire departments, business houses and such well-known railroads as the New York Central, Pennsylvania, Southern Pacific, Illinois Central, Union Pacific, Baltimore & Ohio, Rock Island, Burlington, Missouri Pacific and New York, New Haven and Hartford. For many of these roads Teletype has effected great economies . . . annual savings ranging all the way from $12,000 to $110,000!

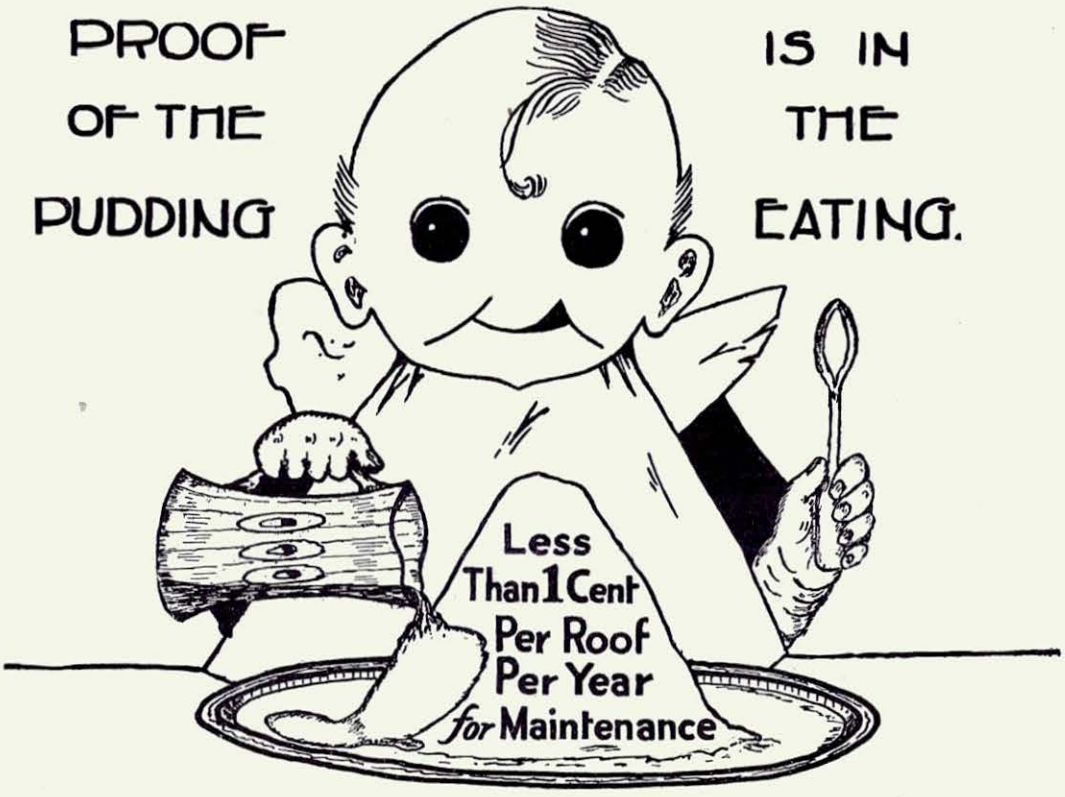
Operated just like a typewriter, Teletype sends typewritten messages over either telegraph or telephone wires. It can be duplexed or multiplexed to transmit two to eight messages over the same circuit at the same time. For further information write the Teletype Corporation, 1400 Wrightwood Ave., Chicago.

TELETYPE

SUBSIDIARY OF

Western Electric Company

LONG LIFE LOW MAINTENANCE



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RAILWAY AGE

Responsibility for Railway Situation

The decision of the Interstate Commerce Commission to let the advances in rates authorized by it in the 15 per cent case go into effect without the pooling conditions originally imposed by it is encouraging, and it is to be hoped that the railways will decide unanimously to carry out the plan for loaning the increased revenues to weaker roads which they submitted to the commission as a substitute for its own plan. There is a wide difference between railways loaning money to each other and giving it to each other, and in the present emergency the effects produced upon public sentiment by the railways co-operating to enable the entire railway industry to pass as safely as possible through the crisis would be most favorable and helpful in future.

One reason why the commission's final decision is encouraging is that if the commission had insisted that the resulting revenues should be distributed as gratuities in proportion to the needs of the railways it is probable that its plan would finally have been rejected because of its socialistic character and doubtful legality, and that the railways would not have got the increased revenues, while now they are sure of getting them. An increase of 100 million dollars in earnings is small in proportion to the present needs of the railroad industry; but it is considerably better than nothing.

Another reason why the commission's final decision is encouraging is that it indicates that the domination of its policies by Commissioner Eastman has ceased, at least temporarily. Commissioners Eastman, McManamy, Porter and Mahaffie dissented. Mr. Eastman's government ownership views are well known, and he was originally appointed by President Wilson. Mr. McManamy was selected by William G. McAdoo personally for assistant director of operation of the United States Railroad Administration. Messrs. Porter and Mahaffie are both Democrats. It would be interesting to know to just what extent the attitude of these members of the commission was influenced by government ownership views and politics, especially in view of the fact that the railroads are heading for disaster while a Republican administration is in power.

If the commission's final decision can reasonably be interpreted as indicating a tendency of a majority of its members to favor more liberal regulation it is a good omen that is much needed. The Wabash railroad has passed into receivership. Numerous other large railroads are threatened with receivership. Who or what is responsible for this? It may be said that the railroads are merely suffering with other industries from the depression. How does it happen, then, that the average price of industrial stocks on the New York Stock Exchange is now about 40 per cent higher than the lowest point reached in the depression of 1921, while the average price of railroad stocks is about 40 per cent lower than the lowest point reached in 1921?

Responsibility of the Commission

The facts as to the responsibility for the present railroad situation are beginning to be understood by students of business and finance, and to be disseminated among the American people. On December 4 the Hearst newspapers published an article by B. C. Forbes in which he said, among other things, "The emperors who constitute the Interstate Commerce Commission are fiddling while America's railway structure daily totters. * * * The commission has notoriously dawdled over one problem after another, creating the impression that it has totally failed to grasp the gravity of the responsibilities devolving upon it. * * * The inevitable procession toward receivership has begun. Wabash has already reached bankruptcy. Unless the I. C. C. promptly and drastically alters its tactics other systems will collapse. Even though it is beyond the reach of any earthly power, surely the Interstate Commerce Commission will shortly feel moved to abandon obstructive and institute constructive action." Members of the commission probably would be surprised to know how many people are thinking what Mr. Forbes said.

The Transportation act of 1920 declared it to be the policy of Congress "to foster and preserve in full vigor both rail and water transportation." In pursuance of that policy it directed the commission to so adjust and initiate rates as to enable the railways "as nearly as may be" to earn a fair return upon a fair valuation. The commission held that a fair return would be 5¾ per cent annually. It held in the O'Fallon

valuation case, however, that a valuation made in accordance with previous decisions of the Supreme court regarding the weight that should be given to cost of reproduction would be too large. In support of this view it cited in its opinion in the O'Fallon case, which was decided in February, 1927, the fact that it had not allowed the railways to earn in preceding years a fair return, even upon its own basis of valuation, and that, in spite of this, in the years 1920-1926 four billion dollars had been invested in railroad property, and that, as it said, "The credit of the railroads in general is now excellent and the time seems to be approaching rapidly when many of them will be able to finance not only through bonds and notes but by issues of new stock". In the brief presented for it to the Supreme court in the O'Fallon case it contended, in effect, that it should be allowed, in accordance with its own foresight and wisdom, to exercise virtually arbitrary power in determining how much net operating income the railways should be allowed to earn. The Supreme court ruled that it must regulate in accordance with the long established law of the land regarding fair valuation, but the commission, regardless of this and the provisions of the Transportation act persisted in carrying out its previous policy of so regulating the railways that never, in any of the prosperous years 1923-1929 did they earn a fair return even upon its own basis of valuation, and that, on the average, they earned much less than a fair return.

All previous experience showed that sooner or later prosperity would be succeeded by depression. It was inevitable that if the railways were restricted to less than a fair return in years of prosperity they would earn much less than a fair return in a period of depression. The commission, however, in the exercise of the foresight and wisdom upon which it told the Supreme court, the railroads and the public they could confidently rely, refused to foresee the possibility of a depression. This is the real reason why the railroad industry entered the depression with a general level of rates that was too low, and why it is now in much worse condition than any other large industry.

Smallest Net Operating Income in Thirty Years

One of the greatest recent achievements of the national government has been that of so subsidizing the growing of wheat to maintain its price as to cause the price to decline to the lowest point in 700 years. But the government's agent, the Interstate Commerce Commission, can be credited with an achievement almost equally remarkable. It has so well succeeded in so regulating the railways as "to foster and preserve (them) in full vigor" that they will earn in 1931 the smallest net operating income in thirty years. The commission has proved itself the ablest architect of ruin the government ever has created. Some persons believe the Farm Relief board has been our ablest architect of ruin; but the Farm Relief board has succeeded in bringing to the verge of ruin only a comparatively small number of the farmers, while the Interstate Commerce Commission has succeeded in bringing to the verge of ruin almost the entire railroad industry.

Has the commission's confidence in its foresight and wisdom been shaken by developments within the last two years? Its opinion in the 15 per cent rate case, and even its annual report for 1931, which was made public this week, indicated that it had not been. Having expressed so much optimism regarding the future of railroad credit in its decision in the O'Fallon case, in spite of the fact that it had persistently refused to let the railways earn the fair return to which they were entitled by law, it said in its annual report for 1931, when the railways were earning the smallest net operating income for thirty years, "This presently existing distrust is natural but quite undue. * * * When business conditions begin to improve railroad traffic and earnings will improve in harmony with them, just as they have in the past. * * * When railroad earnings take a sharp turn upward, as in due time they will, railroad credit will also rise."

One of the greatest dangers to the railroads has been the commission's unfailingly complacent optimism concerning the future of their credit regardless of what their earnings have been. Was the commission showing any more foresight regarding railroad credit when it said this in 1931 than it was showing when it wrote its opinion in the O'Fallon case in 1927?

It defended itself from the impression prevailing among investors that it "has been reducing railroad revenues by a process of gradual but continual 'whittling away' of freight rates," and added, "We do not believe that this impression is shared by those who are well acquainted with the commission's activities." What railway officers who are very well acquainted with the commission's activities charge is that it made an unwarranted general reduction of freight rates in 1922; that this resulted in the railways constantly, in subsequent years, failing to earn a fair return; that, in spite of all the importunities and arguments of officers of the railways, it persisted in keeping freight rates on a level that was plainly too low; that in consequence the railways entered the depression with a level of rates too low even in a period of prosperity; and that this is the reason why their present financial condition is so desperate. The commission cannot disprove this indictment merely by pointing to the improvement in railway earnings and credit that occurred during the recent years of prosperity, because it was not due to the commission's policy but was entirely due to increases in freight traffic caused by activity in general business and to economies in operation effected by railway managements. The vital question is as to whether the commission conformed to the legal and economic requirements that it should so regulate the railways as to enable them to make earnings in both good and bad years that would, on the average, yield them a fair return and thereby enable them to maintain their credit

and the transportation service that the public must have. The facts that in the years of prosperity they never once earned a fair return, and that their earnings and credit are at present what they are, are a complete answer to that question.

Business men, farmers and the public have been constantly warned for twenty-five years that the commission's policy of regulation was legally and economically unsound and a menace to the nation. Even when both passenger and freight traffic were rapidly increasing before the war its regulation caused a steady decline in net return which helped to plunge the railroads into government operation at the end of 1917. Government operation soon convinced the public that it did not want government ownership. Perhaps numerous railroad bankruptcies during the present depression will at last convince both the public and the commission that a policy of confiscatory regulation is no better in the long run for the public than it is for the railroads. If this is the outcome, the lesson will be worth all it costs, as dear as it will be.

Bridge Inspection

Should the system officer in charge of bridges inspect every structure (other than culverts) each year? This question was answered affirmatively by the bridge engineer of a large railway who maintains his office in a business car for several weeks every fall while he makes a trip over the entire system. It is only by seeing every structure, he said, that he can be sure that some of them will not suffer serious neglect.

While we hold no brief for a plan of bridge inspection that requires the head of the department to be absent from his office for a month or more, there is surely merit in any plan that enables him to have an intimate knowledge of the condition of all the structures. Possibly a modified plan, embodying the employment of system inspectors reporting to the bridge engineer, would permit of a more curtailed personal inspection that would still enable him to possess the essential facts. The need for an intimate knowledge of the bridges is particularly necessary at times like the present. The division staffs are being sorely pressed to cut maintenance programs to the bone, and not all superintendents or division maintenance officers can be expected to possess that balance of judgment that will enable them to give all units of the property the same consideration. Serious corrosion of a bridge that has not reached the point of danger may easily be overlooked when every effort must be centered on doing those things that are necessary to avoid hazardous situations or conditions that make for interference or delays to train movements. The division staff, also, is not in a position to know just how far the management is being compelled to go in the deferring of maintenance where the neglect now is going to cost a great deal of money in the end.

Here lies the opportunity for the system bridge officer, who, with a knowledge gained through personal inspection, can insist on maintenance measures that will be fruitful of a desired balance of the physical condition of structures over the entire system. One who knows all the structures is in the best position to say where money must be spent now to avoid the greatest expenditures later.

Winter Is Here

With the exception of certain special operations such as the renewal of rails the summer has long been recognized as the period of constructive upbuilding of track, and the winter as a time for holding the ground already gained. On most of the roads, the season of active track betterment is now at an end and for the next three or four months the energies of the track forces will be directed towards the maintenance of the roadway in its present condition. This will require unusual alertness this year for several reasons.

In the first place, the rainfall in most areas has been greater than normal within recent weeks and the roadbed is approaching the winter freeze-up with a higher degree of saturation than usual. The relation between such rainfall and the heaving of the roadbed, with its attendant difficulties and hazards, is known to all maintenance officers.

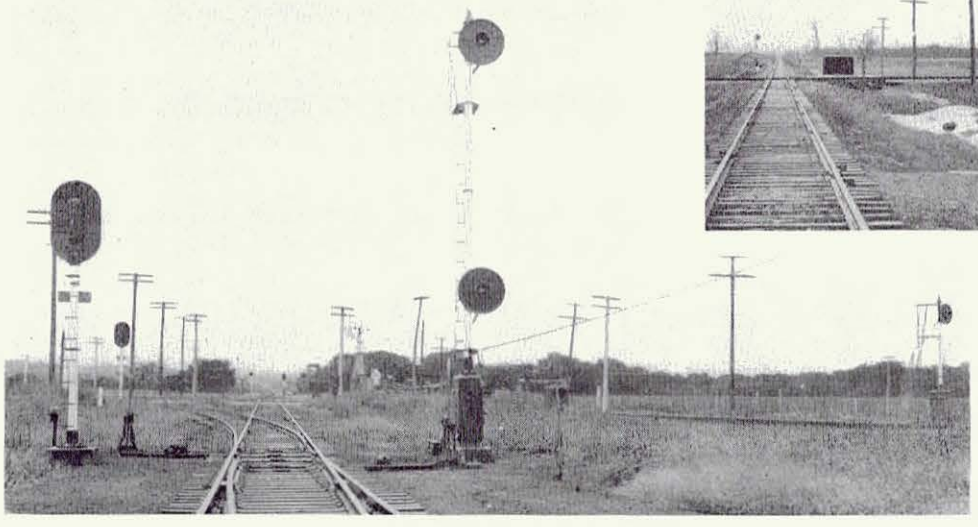
Even more serious, however, are the effects of the drastic curtailment of maintenance expenditures during the last year, which curtailment has resulted in a much larger amount of work being left undone than is normal at this season. It is true that the liberal expenditures made during 1926-1929 have stood the roads in good stead during the current year. On the other hand, the wear and tear of traffic and of the elements are constant and can be overcome only by the expenditure of corresponding amounts for materials and labor. No one who has studied maintenance of way expenditures during the two years can fail to appreciate the toll that has been taken out of the properties. This has occurred at a time when the track is being subjected to the most insistent demands in history for high speeds and regularity of service in freight as well as in passenger movement. If such schedules are to be maintained during the months immediately ahead, with the adverse weather that is to be expected, maintenance forces must be unusually alert to detect and correct any weakness.

While there is no widespread cause for alarm, there have been several disconcerting accidents due to track failures within recent weeks which emphasize the necessity for the adoption of all reasonable precautions to maintain and insure safety of travel during a period which is at best abnormally severe. The period which we are now entering is one of especial concern to maintenance officers and to operating and executive officers who control expenditures.

Automatic Interlockings Reduce Operating Expenses

Replacement of manually-operated interlocking plants and elimination of train stops at unprotected grade crossings will result in attractive savings

Home Signal of an Automatic Interlocking at a Crossing of the D. & H. with the C. N. at Lacolle, Que.



Automatic Plant on Union Pacific Involving Crossing and Junction with Burlington

BY taking advantage of the opportunities presented by automatic interlocking facilities, railroads can effect net savings ranging from 20 to 170 per cent on capital expenditures that will in most cases be less than $10,000. Many railroad grade crossings now equipped with manual interlocking protection are worthy of serious consideration with a view either to making the plant completely automatic in operation, or to controlling it from some remote point at which operators are required for other duties, thereby eliminating the need for levermen at the crossing and saving enough in one or two years to pay for the entire improvement. Furthermore, every unprotected grade crossing at which trains are needlessly stopped is a potential source of revenue, in the sense that money saved by eliminating these stops is equivalent to money earned.

That this comparatively recent development in interlocking has successfully passed the test of service is attested by the attractive results of its extensive adoption within the past six years by railroads in all parts of the United States and Canada. But the surface has only been scratched. There are today a great many railroad grade crossings, junction switches, gauntlet tracks and other layouts that can profitably be equipped with automatic interlocking. The low first cost and highly attractive rate of return are features that no railroad can afford to overlook.

Automatic Interlocking Is Fully Developed

Although the idea of controlling signal and switch functions automatically upon the approach of a train is not a new one, it is only within recent years that many actual installations have been made and the feasibility of automatic control has been convincingly demonstrated. One of the earliest applications of automatic interlocking, installed in June, 1922, is to be found at a gauntlet-track bridge on the Great Northern. In the same year a grade crossing on the New York Central was equipped with automatically-controlled interlocked signals.

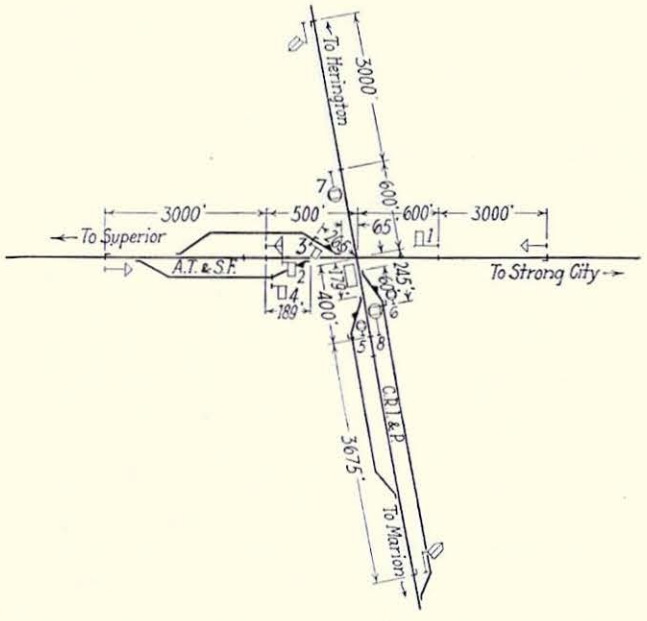
The possibilities opened up by these and a few earlier installations were soon recognized, as is evidenced by the rapid increase in the construction of automatic plants of many and varied types in the nine years that have since elapsed. Five automatic interlockings were installed in 1923, 4 in 1924, 8 in 1925, 18 in 1926, 30 in 1927, 40 in 1928, 63 in 1929 and 79 in 1930, making a total of 249 such plants in service at the beginning of

this year. The railroads that reported more than 10 such crossings in service as of January 1, 1931, are listed in the accompanying table.

Table Showing Roads Having More Than 10 Automatic Plants in Service as of January 1, 1931

Name of Road	No. of Automatic Plants
Chicago & North Western	48
Great Northern	30
Chicago, Milwaukee, St. Paul & Pacific	29
Chicago, Rock Island & Pacific	27
Missouri Pacific	18
Northern Pacific	18
Minneapolis, St. Paul & Sault Ste. Marie	13
St. Louis-San Francisco	12
Minneapolis & St. Louis	11
New York Central	11

It will be observed that most of these installations are on western roads. This is due largely to the fact that the traffic on many of these lines is not heavy enough to warrant the expense of installing manually-controlled interlocking plants, although ample to make profitable the installation of automatic interlocking. However, the scope of this type of control is by no means limited to light-traffic conditions, nor to simple crossings and gauntlets. Automatic interlocking is replacing existing plants at heavy-traffic crossings. It is being applied to complicated track layouts involving



At Lost Springs, Kan., on the Santa Fe, Several Passing Sidings Were Involved

passing and interchange tracks. It has been applied successfully to grade crossings where stations serving one or both lines presented serious operating problems from a signaling standpoint. In Ohio, automatic plants including the operation of derails are giving satisfactory service on the Wabash and the New York Central. Furthermore, the Great Northern has one plant which includes the automatic control of a power switch machine at an end of double track, and another plant which includes a junction switch. In short, the application of automatic control is limited only by the ingenuity of human minds.

Replacing Manually-operated Plants

An outstanding advantage of automatic interlocking is its ability to replace existing interlocking plants at railroad grade crossings where operators or levermen are used. Experience has shown that the saving effected by the release of these men will in many cases pay for the cost of an automatic plant in 18 to 24 months. For example, when the Santa Fe installed an automatic interlocking plant at a grade crossing with the Frisco at Camp, Okla., the wages of three levermen, formerly employed to handle the manually-operated mechanical plant, were eliminated, saving $4,898 annually—a true indication of the economy of the automatic interlocking, since the maintenance and operating costs of the former plant were practically equal to those of the present facilities. Compared with the $6,866 spent for the new plant, this saving represents an annual return of 71 per cent on the investment and means that the new plant paid for itself in less than 17 months.

Likewise, the Chicago, Rock Island & Pacific has profitably replaced several mechanical interlocking plants at railway grade crossings, with automatic interlockers. At Pleasant Hill, Mo., where the Joplin division of the Missouri Pacific is crossed at grade, a mechanical interlocking plant was replaced at a cost of $5,500. The net annual saving, due chiefly to the elimination of three towermen, is approximately $4,500—a return of 82 per cent on the investment.

Unnecessary Train Stops Are Costly

Although the savings resulting from the elimination of unnecessary train stops are not so tangible as those made by eliminating operators' salaries, they are none the less real. Proof of this is abundant. Experience on certain roads has proved that an automatic interlocking which will eliminate the stopping of four to six tonnage freight trains daily, will effect savings equivalent to the fixed charges plus the operating and maintenance costs of the new facility. An authority states that a total train-hour saving of 14 min. daily will pay for an automatic plant.

At a crossing of the main line of the Chicago & Eastern Illinois with a branch line of the Illinois Central at Sullivan, Ind., the installation of an automatic plant eliminated the necessity of stopping approximately 50 trains a day. This plant is complicated by the presence of two interchange tracks. A 1¾ per cent grade on the I. C. and an 0.8 per cent grade on the C. & E. I. had presented serious operating difficulties prior to the installation of the automatic interlocking. Therefore, the elimination of the necessity of stopping trains at the crossing resulted not only in substantial economies but also in greatly improved train operation. The facilities cost $11,600, of which amount approximately $3,200 represents the investment for four smashboard mechanisms. The elimination at this crossing of approximately 18,000 train stops a year represents an annual saving of at least $12,000. Thus, it will be seen that within a year of the date of its installation, this plant had paid for itself and was yielding a substantial profit.

At certain crossings on the Santa Fe, where no protection was previously provided and where all trains were required to stop before passing over the crossing, the savings effected by automatic interlocking protection were even greater than at crossings where operators were eliminated. At Lost Springs, Kan., the total cost of the automatic interlocking was $13,277, a comparatively high figure because of the number of dwarf signals, required for movements from side tracks, in addition to the four main-line home signals—but the net saving per annum, based upon an average cost of $2 for each train stop eliminated, was $16,864 or 127 per cent. At Marion, Kan., a simple crossing at which

no protection was formerly provided, an automatically interlocked home signal was installed on each of the four approaches to the crossing. The cost of the installation was only $8,703 as compared with a net annual saving of $15,088, based as before on an average cost of $2 for each of the more than 8,000 train stops eliminated annually. Here the rate of return is 173 per cent.

Complicated Conditions No Obstacle

Although automatic interlocking found its greatest application in simple grade crossings and gauntlet tracks, its great flexibility adapts it to complicated track layouts involving interchange tracks, passing sidings and single or double track, and even to points where stations on one or both tracks present serious problems from a signaling standpoint. In August of this year the Union Pacific completed a construction program involving the installation of automatic interlockers at seven grade crossings on the U. P.—St. Joseph & Grand Island route between Hastings, Neb., and Menoken, Kan. The automatic interlocker at Endicott, Kan., which is typical of the complications encountered, includes a crossing with the Chicago, Burlington & Quincy and several passing track switches within or immediately in advance of the home-signal limits. The design of the interlocking was further complicated by the presence of an interchange track which the Burlington uses in routing three trains each way daily over the St. J. & G. I. Thus, it was necessary to protect not only the crossing movements, but also those through the junction. Under certain operating conditions, it is desirable to hold the trains on one road and give preference to trains on the other. To accomplish this, a part-time-manual type of control was devised which gives the operator in the St. J. & G. I. station the option of controlling the plant by a set of two interlocked desk levers, or of reverting the plant to fully automatic operation.

Three automatic interlockers—two of which have a modified, part-time-manual control—, installed last year at grade crossings of the main line of the Minneapolis & St. Louis with branch lines of the Chicago & North Western in Iowa, have successfully demonstrated the adaptability of automatic control to complicated conditions. At each of these three crossings, there is a passenger station, and at two of the crossings there are several diverging tracks and switches within the limits of the clearing sections and home signals. The daily traffic on the M. & St. L. approximates 20 freight and 6 passenger trains, most of which were required to make statutory stops at each of the three crossings. The traffic on each of the North Western branch lines is in the neighborhood of 4 to 8 trains daily. Because of the track complications mentioned, the total cost of the three plants was approximately $30,000, but this expenditure has been well warranted by the attractive savings that have been realized by both roads. The North Western is making an annual saving of 40 per cent on its investment while the Minneapolis & St. Louis is saving more than 66 per cent on its share, entirely by reason of the elimination of train stops.

An example of the economy of automatic interlocking protection for gauntlet tracks is afforded in the recently completed installation of signals to govern train movements over a gauntlet-track bridge of the Baltimore & Ohio Chicago Terminal, near Hammond, Ind. At this point the double-track line had formerly converged to single track where it crossed a narrow bridge over the Grand Calumet river. A switch tender on each of three tricks daily had been employed to handle the switches and to flag trains across the bridge. To eliminate the expense of these switch-tenders and at the same time to provide safer train operation, the B. & O. C. T. gauntleted the track and installed an automatic interlocking. Thus an annual saving of $5,551 in wages was effected with an expenditure of only $2,800, while the additional operating and maintenance expenses of the plant are less than $400 a year.

Convincing as these instances are, they represent only a few examples drawn at random from a list of approximately 250 automatic interlockers, most of which have been installed in the past six years in this country and Canada. What is more important, they scarcely begin to show the wide possibilities of automatic control in opening up new fields of profit.

The limitations that are imposed upon automatic interlocking under certain conditions are being overcome effectively by modifying the control scheme to meet the exacting conditions of the particular layout. In some cases a part-time-manual type of control is required, to provide for special moves, blocking, issuing train orders at certain times, or giving superiority to certain directions or classes of traffic. This manual control may be vested in the hands of a local operator or station agent, or it may be added to the duties of an existing block station or interlocking tower located several miles distant.

Quick Return on Small Investment

Of prime importance in considering the feasibility of automatic interlocking are its low first cost and the immediate and attractive return on the investment. Other advantages are: Low fixed charges for interest and depreciation; ease and low cost of maintenance; adaptability to existing or future installations of automatic block signals or centralized traffic control; greater safety of train operation; faster average train speed; and in some cases the opportunity to increase tonnage ratings. Despite present business conditions, a road is warranted in investigating prospective applications of automatic interlockings now, because such installations effect savings in operating expense, when replacing manual plants, that are independent of the volume of traffic, while the savings effected at crossings where train stops are eliminated will increase as traffic picks up.

In Next Week's Issue

The steady progress in the improvement of freight transportation service which has taken place since the return of the railroads to private management and operation in 1920 has released forces which are creating demands for a new and more flexible type of service. The development of a new type of competition in the form of hard roads and motor trucks has shown the possibility of providing a service which meets this demand. The article in this series, which will appear in next week's issue, will discuss the relations of freight-car development to the economies in transportation which must be made to meet this situation.

From a General Superintendent's December Circular.—The exercise of proper care in selecting cars for loading would greatly reduce the number of claims being received because the amount of freight being loaded into defective cars is very large.

Seven Oil-Electric Locomotives for Terminal Switching Service

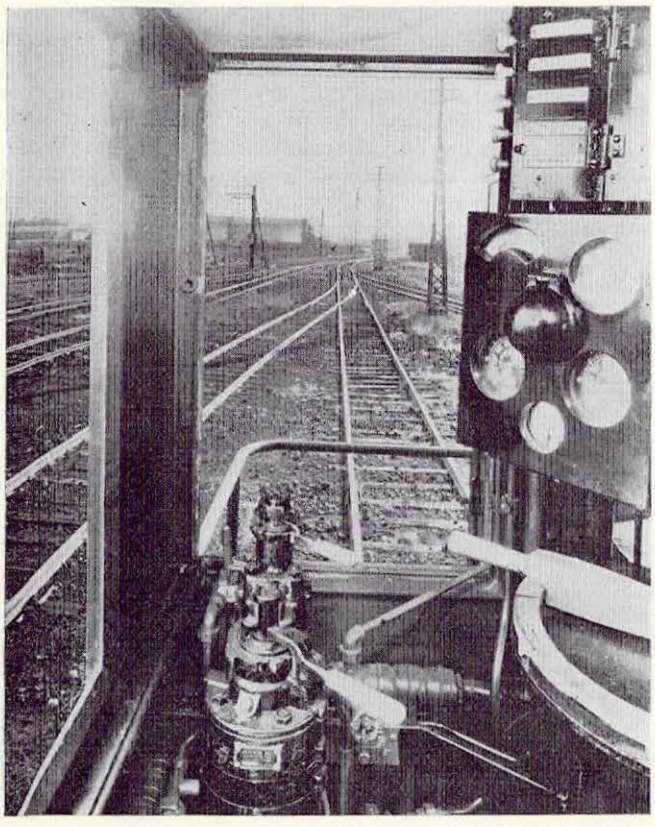
Sixty-ton, 300-hp. switchers now operating on the Bush Terminal—Tractive force of 22,600 lb. at one-hour rating—Improvements in design to assure smokeless operation

THE General Electric Company recently delivered seven 60-ton, 300-hp. oil-electric locomotives to the Bush Terminal, New York. These switchers, which were constructed at the Erie, Pa., plant of the builders, are powered with Ingersoll-Rand 10-in. by 12-in. six-cylinder oil engines, developing 325 b.hp., at 550 r.p.m. The engine is directly connected to a G. E. DT-515 differential-compound generator. The tractive force at 3.5 m.p.h. is 22,600 lb. at one-hour rating. Other important dimensions and weights are shown in the table.

While adhering to well-established practice so far as the engine and the electric equipment are concerned, new features have been embodied in the design and construction of the cab, underframe and trucks, which are fabricated entirely from structural-steel shapes and plates, and electric-arc welded throughout. There are no rivets, and bolts have been used only for those parts requiring occasional removal or renewal.

Smokeless combustion, being an important item in connection with the operation of oil-electric power within city limits, dictated a number of improvements to the oil engine. The seven new Bush Terminal switchers are equipped with an improved design of oil engine, in which the fuel oil is injected into the combustion chamber of each cylinder through two spray nozzles arranged so that the sprays impinge against each other at the center of the combustion spaces. This impinging action causes a thorough mixture of oil and air, thus insuring complete combustion with the resultant absence of smoke from the exhaust.

Oil-Electric Switcher Built by the General Electric Company for the Bush Terminal



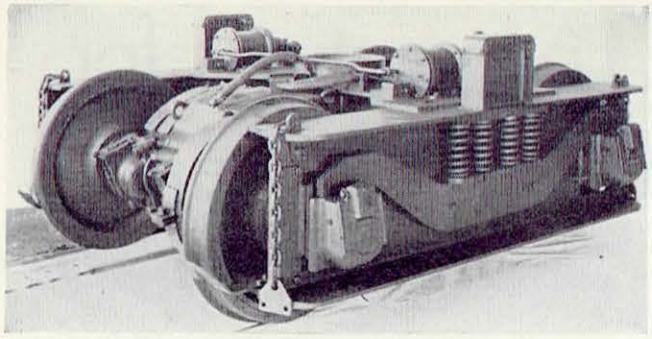
The Cab Is Arranged for Clear Vision and Convenient Operation

Cab Affords Maximum Visibility

Instead of the usual box cab which has heretofore characterized most Diesel electric locomotives, a modified steeple or hood type cab has been adopted. The engine and a small portion of the generator are enclosed by the long hood, with the remainder of the generator projecting into the main cab. The narrow hoods do not interfere materially with the engineman's vision in either direction. For switching service, where it is impractical to change stations for each direction of movement, this type of cab affords maximum visibility.

The control equipment, the air compressor and the fuel tank are located under the short hood at the opposite end. A tubular type radiator consisting of 14 sections is built integral with the front end of the engine hood. Air is drawn through this radiator and discharged through the screen doors at the sides by a 42-in., propeller-type fan direct driven by a 900 r.p.m. series motor. The sides of both hoods consist entirely of hinged doors and on top of the engine hood there is a hinged hatch cover which may be thrown back or locked partially open for ventilation.

In the main or operating cab, there are two control stations located in diagonally opposite corners. To provide better visibility, the floor is raised above the



All-Welded Truck With Traction Motors Installed

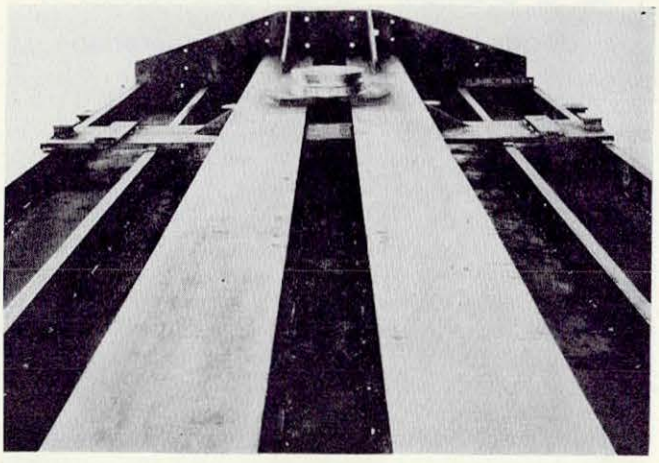
main deck, which brings it about to the center line of the generator around which it is fitted. About 70 per cent of this floor area consists of a hinged trap door which, when raised, gives access to the lower half of the generator. This hood type cab and the location of the apparatus therein have been designed with a view of affording maximum accessibility to all parts of the equipment. Through the doors of the hoods all routine inspection and maintenance operations may be carried on and also most overhauling jobs like the renewal of crank-shaft bearings, etc. Through the hatch in the top, the cam shaft and valve mechanism may be adjusted and cylinder heads, pistons, etc., may be removed. The engine hood is bolted on so it may be removed entirely, thus completely exposing the engine. The whole power plant may then be lifted off or, if no crane is available, it may be rolled off end-wise on to a flat car.

Dimensions and Weights of the Bush Terminal Oil-Electric Switchers

Railroad	Bush Terminal
Builder	General Electric Co.
Type of Locomotive	B-B (Electric classification)
Service	Switching
Oil engine:	
Builder	Ingersoll-Rand
Cylinders, diam. and stroke	10 in. by 12 in.
Cylinders, number	Six
Brake horsepower	325
Generator, type	G.E. DT-515
Traction motors, type (4)	G.E. HM-838
Weight, light	117,500 lb.
Weight, in running order	120,000 lb.
Wheel bases:	
Rigid	6 ft. 6 in.
Total	22 ft. 6 in.
Length, inside knuckles	34 ft. 6 in.
Height, overall	13 ft. 8½ in.
Width, overall	9 ft. 6 in.
General data:	
Horsepower rating	300
Tractive force, one-hour rating	22,600 lb.

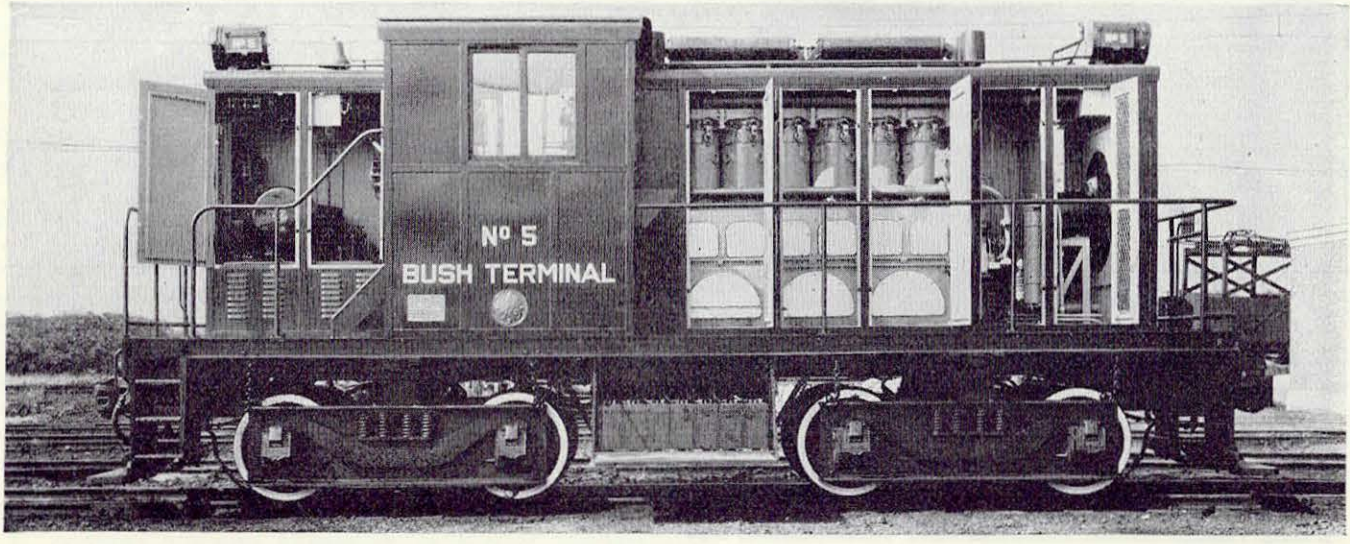
Engine and Power Transmission

Directly connected to the Ingersoll-Rand engine is a DT-515 differential compound-wound, commutating-pole, direct-current generator, on the shaft extension of which is a 125-volt auxiliary generator for exciting the main field windings, supplying power for the auxiliary equipment and charging the storage battery. This battery consists of 56 cells of 100-amp.-hr. capacity and serves for engine starting, lights and for control operation. The four traction motors are G.E. HM-838, box-frame, commutating-pole type, with roller-bearing armatures. They are mounted directly on the axles, drive through single-reduction gearing and have nose support on the truck bolster.



All-Welded Underframe of Steel Plates and Structural Beams

The control equipment is Type M, consisting of electro-magnetically operated contactors for changing motor combinations and an electro-pneumatically operated reverser for changing direction. Two motor combinations are provided: the first with all four in series and the second grouped series-parallel. The speed of the locomotive is controlled entirely by movement of the engine-throttle handles at the control stations. Aside from the two air-brake valves and the small con-



Bush Terminal Locomotive No. 5 With the Hood Open to Show the Location of the Engine and Control Equipment

troller handle for reversing, the engineman has only this throttle handle to operate, the transfer of motor connections from series to series-parallel being effected automatically. This automatic change-over functions with the voltage of the generator and is arranged so that it occurs at such a point that full capacity of the engine is available for either motor combination. At each control station there is an illuminated panel on which are mounted air gages, engine-temperature and oil-pressure gages and a traction-motor ammeter. Along with this, a group of push-button switches provides the engineman with control of the headlights and the radiator-fan motor.

The air-brake equipment is Westinghouse Schedule 14-EL straight and automatic with air supplied by a CP-130, 50-ft., motor-driven compressor. Four brake cylinders are used, two on each truck, mounted on top of the truck frame and connected directly to the foundation brake levers. The air-sanding equipment is supplied with sand from boxes located at the ends of the platform. These are filled through large sand doors fitted into the deck plate.

Frame and Cab Construction

The truck frame consists essentially of three members: Two side frames of 26-in., 151-lb. girder beams, with a 22-in., 108-lb. girder beam serving as the bolster. The bolster beam is welded directly to the side members, the joint surfaces being reinforced with heavy gusset plates and brace plates. All welds are continuous and, except at a few minor points, all welds on the truck have been made with Type R heavily-coated electrode. The load is carried to the journal boxes through double equalizer bars located on either side of the girder beam web. It is transmitted to each bar through four helical springs. The platform, or underframe, has two 14-in., 100-lb. H-columns for center sills, with intermediate and side sills of 6-in. channel. The engine is mounted directly on these center sills so that, in addition to taking the buffing stresses, they afford also a rigid support for the power plant. For end sills 1½-in. plates are used. A ⅜-in. deck plate extends over the entire platform and is attached to the longitudinal sills by ⅜-in. intermittent welds on a 10-in. pitch. The end plates are attached by ¾-in. continuous welds. Body bolsters are attached to all four sills by ¼-in. continuous welds.

The cab structure consists of a framing made of 2-in. T-sections, with continuous welds at all joints. The side and roof sheets are attached to this structure by intermittent welds of 6-in. pitch, except at the outer surface of the side sheets where, in order to provide water-tight joints, continuous welds are employed. As will be noted, the side sheets are placed inside the framing. This permits tying the edge of the sheet at two places, the intermittent weld on the inside and the continuous weld on the outside. In addition to this, the backs of the T-section, projecting through in this manner, produce a paneling effect in the cab wall and break up what would otherwise be a plain surface.

THE FIFTH ANNUAL REPORT of the Albany Port District Commission consists of an illustrated pamphlet of 71 pages, containing a detailed description of the premises, the facilities, the apparatus and the possible future of the "Port of Albany." Photographic illustrations are given of large ocean steamers loading and unloading at the docks. Albany, 143 miles north of New York City, is a port of entry and already freight is moving direct to and from various ports of Europe, the Pacific Coast and other parts of the world.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended November 28, which included the Thanksgiving day holiday, dropped to 558,807 cars, a decrease of 142,243 cars as compared with the corresponding week of last year and of 277,503 cars as compared with 1929. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week ended Saturday, November 28, 1931

Districts	1931	1930	1929
Eastern	123,048	154,714	180,904
Allegheny	108,250	133,380	170,669
Pocahontas	33,757	43,493	51,874
Southern	85,898	112,274	123,810
Northwestern	65,152	79,090	99,808
Central Western	92,818	114,038	136,323
Southwestern	49,884	64,061	72,922
Total Western Districts	207,854	257,189	309,053
Total All Roads	558,807	701,050	836,310
Commodities			
Grain and Grain Products	29,592	33,633	38,716
Live Stock	23,571	23,760	25,769
Coal	104,451	147,817	176,908
Coke	4,741	7,774	11,427
Forest Products	19,840	32,095	48,611
Ore	4,190	5,773	9,438
Mdse. L. C. L.	177,033	194,759	220,000
Miscellaneous	195,389	255,439	305,441
November 28	558,807	701,050	836,310
November 21	653,503	779,752	949,716
November 14	690,366	829,023	982,926
November 7	717,029	881,517	1,048,968
October 31	740,363	934,715	1,072,234
Cumulative total, 48 weeks	34,999,149	43,096,392	49,489,591

The freight car surplus for the week ended November 22 averaged 616,684 cars, an increase of 28,307 cars in a week. The total included 319,603 box cars, 230,269 coal cars, 27,374 stock cars and 11,877 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended November 28 amounted to 52,316 as against 53,164 cars the previous week and 55,394 cars for the same week last year. Merchandise was lighter than last year by 1,850 cars, miscellaneous freight by 883 cars, grain by 552 cars, lumber by 470 cars, pulp and paper by 421 cars and other forest products by 481 cars. Coal increased by 1,423 cars, pulpwood by 195 cars and live stock by 105 cars. The decrease in merchandise of 118 cars from the previous week's loadings was seasonal and was less than normal.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
November 28, 1931	52,316	20,219
November 21, 1931	53,164	21,869
November 14, 1931	55,965	21,802
November 29, 1930	55,400	27,766
Cumulative Totals for Canada		
November 28, 1931	2,401,813	1,208,132
November 29, 1930	2,959,597	1,588,914
November 30, 1929	3,310,856	1,960,191

EASTERN TRUNK LINES including the New York Central, the Pennsylvania, the Baltimore & Ohio, the Erie, the Delaware, Lackawanna & Western and the Central of New Jersey have reduced round trip fares for the Christmas season this year by 33-1/3 per cent, a larger reduction than has been made heretofore. The reduced rates, though they exclude New England, include all points in the United States as far west as Texas, Colorado, Wyoming and Montana; also points in Canada as far west as Winnipeg and certain points in Mexico. Tickets will be sold on December 23 and 24 and until noon on the 25th, and returning will be good until January 4. The reduction does not apply on round trip fares which are less than one dollar.

Combatting Unemployment with a Grade Separation Program

Schedule of 80 eliminations this year in Wisconsin presented many problems of selection, design and construction

By Harry D. Blake

Grade Crossing Engineer, Wisconsin Highway Commission, Madison, Wis.

TOWARDS the close of 1930, the unemployment situation in Wisconsin, as elsewhere, had developed into a problem of considerable magnitude. As one means of providing additional work, a study was made of the feasibility of accelerating the highway grade crossing elimination program of the state, since the highway officers had been confronted with a constantly increasing demand for the elimination of the more heavily traveled grade crossings. Considerable progress had been made in this work but there still remained many grade crossings which required the construction of steel or concrete bridges to carry the railroad and highway traffic at different levels.

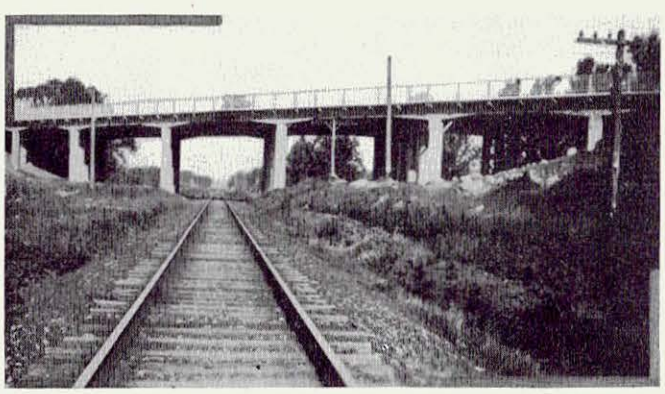
In December, 1930, therefore, Governor-Elect Philip F. LaFollette, called a conference of the presidents of the railroads operating in Wisconsin and proposed a plan for the extensive construction of grade separation structures as a means of creating work for the unemployed. At this meeting every assurance of co-operation was given by the railroad officers, and the plan took tangible form in Senate Bill No. 29, which was passed and then approved by the governor on March 31, 1931, as Chapter 22, Laws of 1931. The bill provided:

(a) For the appointment of a commission for the relief of unemployment, which would be authorized to supervise the emergency work and whose services were to be terminated when the governor deemed that emergency relief was no longer necessary.

(b) That the "general principles of the working agreement for the elimination of railroad grade crossings observed by the highway commission and various railroad companies" were to apply to contemplated work, thereby permitting the construction in one year of projects that were scheduled for as much as two years in the future.

(c) That, if requested, the state could advance the entire cost of the project, the contracts to provide that one-half the railroad company's share be paid in 1932 and the other half in 1933.

(d) For financing the construction from gasoline-tax revenues.

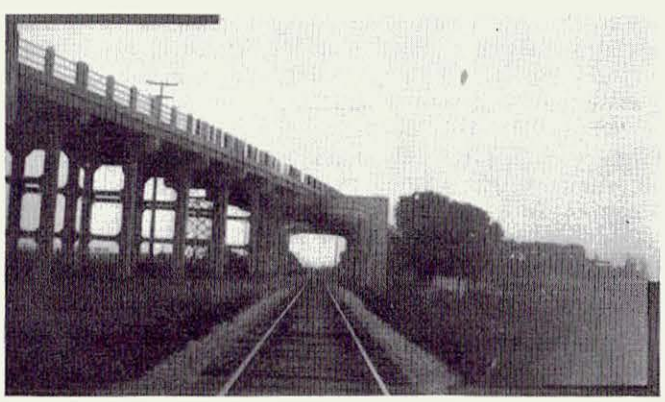


Continuous Girder Construction for a Viaduct with a 50-ft. Roadway

The members of the unemployment commission were appointed promptly by the governor and confirmed by the state senate, and the commission held its organization meeting on April 4. The highway commission was asked to handle the preparation of plans and the execution of the construction work, in accordance with policies to be determined by the unemployment commission. Personnel was available to handle about 20 separations per annum, but to meet the emergency it was necessary to expand the organization quickly. Consequently, about 30 bridge designers were added to the force of the commission, in addition to sufficient engineers and inspectors to perform the survey work, complete the plans for the approaches, and supervise the construction. On April 21, contracts were let for the construction of 14 overhead bridges; 13 on April 28; 6 on May 6, and 10 on May 28, with subsequent lettings from time to time.

Selection of Crossings a Problem

The selection of a large number of crossings for immediate construction presented many difficulties. The law provides specifically that the crossings must be on



Reinforced Concrete Bents at Right Angles to the Highway Center Line Are the Chief Feature of a Viaduct on an 11-deg. Intersection Angle—Chicago, Milwaukee, St. Paul & Pacific, in Sauk County, Wis.

"heavily-traveled highways, heavily-traveled railways, or both." It was decided that the separations should be made largely on the state trunk highway system of 10,000 miles, which includes 5,700 miles of federal interstate and intrastate highways. There were about 600 grade crossings on the state trunk highway system but many of these were main-street crossings in cities and villages where the population was under 2,500, or were located in the outskirts of the larger cities where the separation of grades appeared inadvisable.

Then, too, many crossings were situated on comparatively unimportant highways or railroads, or both. In

the metropolitan areas adjacent to the larger cities many of the so-called county trunk highways, which constitute the secondary system of highways in Wisconsin, carry more traffic than many of the state roads more removed from the centers of population and it appears that a few grade crossings of this classification may be eliminated. Therefore, although there were approximately 10,000 grade crossings in the state, the choice for elimination was definitely limited by the nature of the act. Those grade crossings on the federal interstate highway system and main-line railroads were given consideration first. No crossings of branch-line railroads with secondary highways were considered, and in every

Viaduct on a 5-deg. Highway Curve Over the Green Bay & Western in Wood County, Wis.

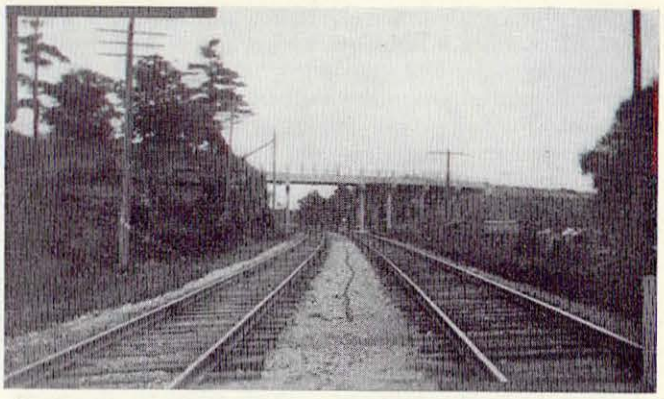
case of elimination both the railroad and the highway carry a considerable volume of high-speed traffic.

Areas of Unemployment a Factor

From necessity, consideration was given to the areas where the largest number of men were unemployed, and it was found that the majority of the separations would be in the industrial areas of eastern, southeastern and southern Wisconsin. This conformed to the requirements of the highway commission, since the heaviest highway travel is in these portions of the state and railroad lines are more numerous here as well. It was understood that construction must start immediately, and, while difficulty over the question of right of way and damages was anticipated, every possible effort was made to satisfy these claims in advance of actual construction.

Presumably, the most "dangerous" crossings were to be selected, but the elements that make up the term "dangerous" are sometimes indeterminate. Experience has shown that at those crossings where the vision is badly obstructed or where the highway alinement is poor there have been few accidents. A careful check of the individual grade crossing accidents in Wisconsin during the last four years indicates that about 50 per cent occurred on the so-called "clear vision" crossings where there is little to obscure the driver's view of approaching trains. Many such crossings are at points where the railroad track is intersected by a straight concrete pavement. Existing facilities to warn motorists of approaching trains do not seem to be entirely effective, for about 50 per cent of the total accidents have occurred at crossings equipped with some type of visible or audible protection and about one-third of the total have been caused by motorists driving into the sides of trains. The accident history of each crossing was studied and where possible this was used as a controlling factor.

In the end, many of the crossings selected were on straight, heavily-traveled high-speed highways and on main-line railroads, in some cases in disregard of vision



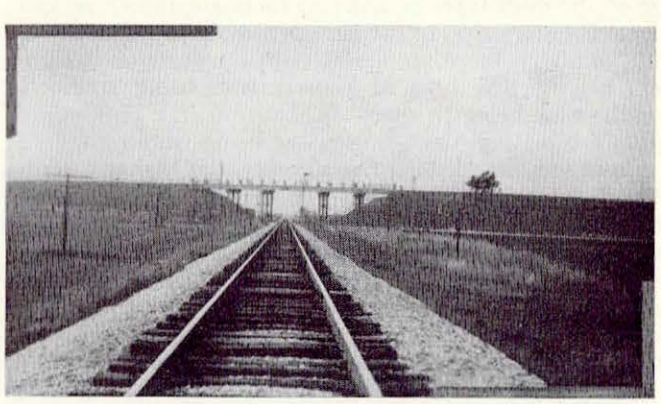
Encased I-beam Floor for a Span Over Two Tracks of the Chicago & North Western in Sauk County, Wis.

and existing protection. The final decision as to the location of the projects was made by the unemployment commission. There was little time for discussion of the proposed projects but approval of the crossings chosen was promptly extended by the railroads, indicating that the selections were sound from their view point, as well as from that of the public.

A study of the crossings to be eliminated indicated that in only a few cases was there any supporting ground. Crossings located at points where the railroad was in a cut or on a fill had long since been separated and, as a result, practically all of the separations are being made at points where the ground on both sides of the railroad track is practically level with the rails. In nearly every case the grade crossing is closed by the construction work and efforts to keep it open for local reasons are discouraged.

A New Type of Deck Structure

The usual road surveys were made and the design standards that are employed on all other highway construction in Wisconsin were applied to the grade separation projects. A vision requirement of 500 ft. was used, with maximum approach grades on overhead crossings of 5 per cent on federal projects and of 6 per cent at other locations. A difficult situation from the standpoint of the highway engineer is that presented at the intersection at an acute angle of a long highway tangent with a track. In an attempt to reduce construction costs, some reverse curvature had been introduced at times in the highways to increase the intersection angles but the reaction of the public had been of an extremely critical nature. As a result, this policy was revised somewhat and 3 overheads are now under construction where the intersection angles are 9, 10 and 11 deg., respectively. With large skews and more than one track, the spans



A Typical Grade Separation Project with a Minimum of Concrete Trestle and a Maximum of Earth Fill

are too great for economical construction with the usual design of overhead highway bridge and a new type of deck structure has been designed, which has transverse girders at right angles to the highway center line extending beyond the bridge rail to supporting columns.

Ties to railroad stationing and datum were made and a layout sketch was submitted to the railroad company for approval, with a request for horizontal and vertical clearances and a statement as to requirements for additional tracks. An overhead survey report, somewhat comparable to the usual bridge survey report, and a two-foot contour map of the bridge site were made for the bridge designers.

In determining the type of separation, careful thought was given to local conditions. With adequate drainage there are many advantages from the standpoint of the public in the construction of subways, but railroad engineers have a number of objections to this type of structure. It appears, however, that claims for damages by adjacent property owners, particularly in metropolitan areas, may be less with subways than for overhead structures. In several instances railroad tracks have been raised 10 ft. or more to make gravity drainage possible. Because of the extremely low temperatures in Wisconsin, automatic pumping is resorted to only where no other plan can be developed.

The subways have clear openings of 40 ft., face to face of highway curbs, with no center piers, a vertical clearance of 14 ft. from top of pavement to low steel, and provision for sidewalks as required. This width of roadway will handle the traffic on a 56-ft. pavement, if parking is prohibited in the vicinity of the subway where the width is constricted. Double-lane or "superhighways" in Wisconsin have or will have two 40-ft. lanes with a parkway between, and subways at railway intersections are designed to conform to this standard.

How Work Was Divided

The railroads were asked to design and build the subways, subject to the approval of plans, procedure and contracts by the highway and unemployment commissions. The trestle type of railroad bridge construction was requested where curves in the highway alinement adjacent to the bridge were found necessary, in order to provide additional sight distance. In such cases, concrete crib work to support the railroad fill is not permitted as this construction obstructs the view of motorists.

The overhead crossings are being designed and built by the commission and will have 27, 30 or 40-ft. clear highway roadways, depending on the amount of traffic. Twenty-seven feet has long been the standard of the highway department for three-lane bridges but this is now being increased to 30 ft. Practically all the bridges are of the deck type, in order to facilitate future widening. The majority are of reinforced concrete construction, although there are a few with Carnegie or Bethlehem beams, this type of construction being confined for the time being to spans of about 60 ft. The longer spans are plate girders, no trusses being employed.

From the experience of past years, the highway commission bridge designers have become familiar with the standards of each railroad operating in the state and the design is made to conform as closely as possible to the requirements of the railroad involved. One railroad company in particular has insisted upon the use of continuous girder construction. Some years ago, when this type of design was proposed, there was opposition to it, not only in this state but by the other highway commissions in whose states this road operated. While it has not been shown conclusively that this type of construction can be built at a lower cost than the usual beam and slab type, the highway commission is willing to recognize that it has advantages, particularly with respect to maintenance. As a result, rigid frame construction for track spans has been extended at times to other roads, and the continuous girder design has been employed on the approaches. Difficulties have arisen during construction but it is felt that this type of construction will prove satisfactory.

Some years ago the highway commission abandoned the use of gravity abutments of the "U" type for overhead crossings and has been using concrete trestles with open-end bents exclusively since that time. This policy has been accepted by the railroads operating in Wisconsin and by many other highway departments.

Construction View of a Viaduct Over the Chicago & North Western in Racine County, Encased I-beams for the Track Span

Overhead Crossings Predominate

Everything else being equal, it appears that at the average location an overhead bridge will not exceed a subway in cost, and it has been found possible to move the overhead projects to completion in less time. Under the existing conditions, it appeared advisable to build separations of this type in most cases. It seems probable, therefore, that about three-fourths of the projects will be overhead structures and one-fourth subways, a few with automatic pumping.

As the bridges took form in the design office, profiles of the decks were furnished to the road department and in many cases the road plans for the approaches were finished coincident with the completion of the design of the bridge. In order to speed up the bridge design, the general drawing showing the bridge in plan and elevation was omitted and the detailing expanded sufficiently to show everything necessary for construction. These plans were submitted to the railroad bridge engineers for tentative approval without checking, and in some cases the contracts were let before the plans were checked. No construction, however, was started until this checking was completed. Later the sheets requested were furnished and a set of completed drawings submitted to the railroad company for final approval.

It appeared that highway commission funds from various sources might be used in connection with the funds supplied by the emergency commission and the question of estimates was of primary importance at every step. Every effort was made to have complete information at hand for consideration by the two commissions at all times.

Unemployment Registration

The state industrial commission was asked to cooperate, and as rapidly as the contracts for the projects

were awarded, it registered unemployed labor at or near the location of the various projects. Cards were filled out for every applicant, showing the nature of his past work and period of unemployment, and from these the employees were chosen by the successful contractor. The law provides that applicants must have been residents of the state for five years, and married men with dependents were given preference.

All the contracts have provided a minimum wage for common labor, and the later ones have carried a similar wage scale for several other classifications. This information was furnished by the industrial commission. The construction contracts also require that two six-hour shifts, with different men in each, shall be used to give employment to the maximum number of individuals.

It was felt that more labor would be employed in the production of crushed stone than of crushed gravel, and that material was used in many cases. The standard specifications for concrete of the highway commission were employed in the construction of the overhead structures, except that the designed mix and segregated coarse aggregate clauses were modified and approximately 1:2:3 concrete substituted. The subway construction by the railroads is handled by contract with the same special provisions in regard to labor as for the overhead bridges. The falsework and structural steel erection is done with railroad company forces.

The grade separation program is well on the way to completion with 65 projects under construction. It is hoped that at least 10 additional structures can be started before January 1. It is planned to continue the bridge construction during the winter months. The earth approaches and paving have been let as rapidly as the progress of bridge construction permitted. A minimum of 80 separations is contemplated in 1931, with a possible maximum program of 91. The projects remaining involve difficult problems of engineering and public policy but it is felt that the schedule will be maintained.

Canada's Royal Transport Inquiry Begins

ALMOST immediately after the arrival at Ottawa on December 4 of Lord Ashfield and L. F. Loree, the two non-Canadian members, the Royal Commission named by the Dominion government to inquire into the transportation situation held its initial sittings in the railway committee room of the Senate. After the opening formalities the entire sitting on the first day was occupied with receiving statements from Sir Henry Thornton for the Canadian National and on the following day President E. W. Beatty of the Canadian Pacific presented his views of the question. Both of these hearings were behind closed doors. Before the inquiry is completed there is likely to be a protest from the public against private sittings on an eminently public case. With the conclusion of these Ottawa sittings the Commission left for Western Canada by special train. After an examination of railway matters extending to the Pacific Coast the Board will return last and tour the Maritime provinces and end its hearings in Montreal, Toronto and Ottawa. A report in time for some legislative action at this coming session of the Canadian Parliament is expected.

The general program of the Commission was contained in a statement issued by Justice Lyman P. Duff, chairman of the Commission and a member of the Supreme Court of Canada:

"The railway chiefs are expected to be prepared to deal orally with such questions as they or the members of the commission may consider desirable.

"It is not improbable that this discussion may range freely over the various matters within the scope of the inquiry and involve considerations affecting the financial position of the railways and their business administration as well as operation. As it is important that the railway officials should severally feel entirely free to discuss the affairs of their companies and organizations without reserve, and to answer fully any questions which may be asked upon any aspect of company affairs, it is felt that the attendance on this occasion should be restricted to those actually concerned with the conduct of the inquiry.

"Following the procedure adopted by the previous Royal Commission on railways and transportation in 1916, it is the intention of the present commission to make an inspection of the properties of both railways. In the course of that inspection, the commission will have with them representatives of the engineering and operating staffs of each system, so that any necessary information in relation to the physical properties may be quickly available.

"On the western trip, it is the intention of the commission to confer with the provincial governments on transportation matters. At the provincial capitals opportunity will be afforded for the submission of representations by or on behalf of public bodies or organizations desiring to be heard, though it should be borne in mind that the Royal Commission is not a rates tribunal, that responsibility being vested in the Board of Railway Commissioners, as provided by the Railway Act nor has it been authorized to deal with labor disputes or wage agreements. On the return of the commission from the west, the same opportunity will be afforded interested bodies to make any necessary representations not only to Ottawa but at other principal centers."

The other members of the Commission are, in addition to Justice Duff, Lord Ashfield and Mr. Loree: Sir Joseph Flavelle, banker of Toronto; Beaudry Leman, banker of Montreal; Dr. Walter Murray, president of the University of Saskatchewan; and Dr. Webster, New Brunswick.

Before the Commission heard the views of the two railway heads a review of the whole situation was given to the Board by Hon. Robert J. Manion, Minister of Railways and Canals. Dr. Manion outlined the history of railway development in Canada, from the time of the construction of a second transcontinental system to compete with the Canadian Pacific, and the later project of still a third transcontinental line—the whole resulting in Canada's now having a smaller population per mile of line than any country in the world. This condition, combined with the depression and highway competition, has brought about the problem a solution for which the Royal Commission must seek. He called attention to the fact that the total cost of the war to Canada was $1,695,000,000, whereas the government's outlay in railways has reached a total of $2,655,000,000.

FOUR MILLION CHRISTMAS TREES are being cut down along the lines of the Canadian National in Canada and the railroad expects soon to carry them to points in 15 different states on this side of the line. The Central Vermont expects shippers to bring to its stations 750,000 evergreen trees to be carried mostly to far western states.

I. C. C. Submits Annual Report

Regulation body optimistic as to railroad future but wants more law

WASHINGTON, D. C.

STILL unconvinced that there is any especial occasion for worry about the railroad situation or that its policies have been unduly repressive, the Interstate Commerce Commission in its annual report to Congress replies to its critics by declaring that the presently existing distrust of railroad investors is "natural but quite undue" and expresses its own confidence in the ability of the railroads to rise to the needs of the occasion. When the depression is over, it says, railroad credit will also rise and the commission cannot believe that the roads will not be able to withstand the competition of the motor trucks. Also "if they were able to conduct the passenger business as profitably as the freight business," even now the railroads would be earning enough to stabilize their credit, which had, in general, at least "continually improved" before the depression.

However, the credit situation is regarded as sufficiently serious not to be dismissed with only general comment, and the commission discusses various steps which may be taken by Congress through legislation to improve the situation with respect to competing transportation agencies and repeats the advice given the railroads in the fifteen per cent case report as to things which railroad managements may also do to help themselves.

Investigation of Competing Transportation Proposed

In addition to reiterating its former recommendation that bus transportation be regulated and promising additional recommendations with respect to regulation of trucks in its forthcoming report on Co-ordination of Motor Transportation, the commission recommends that Congress provide for "an impartial and authoritative investigation for the purpose of determining whether and to what extent motor, water, and air carriers operating in competition with the railroads are receiving direct or indirect government aid amounting, in effect, to a subsidy; and, if so, what steps, if any, are necessary to correct this situation, with a view to placing competition on a just and equitable basis." The commission adds that such an investigation, if it is instituted, might well be extended to cover also the question of whether it is desirable in the public interest that regulations affecting public safety and convenience in the operation of motor carriers be made uniform throughout the country, and, if so, how such uniformity may best be brought about, and that "the desirability of further public regulation of the port-to-port rates of water carriers be made the subject of an investigation or consideration by Congress."

As for the commission itself, it believes that with more and better laws it might be able better to deal with the situation and 15 recommendations for legislation, in addition to those already mentioned, are included, most of which would still further increase the scope of the commission's jurisdiction over the railroads. Foremost of these is the proposal for a revision of the rule of rate-making in Section 15a, including a repeal of the recapture clause, which was outlined last January in a report to the Senate committee, to eliminate "elusive hopes" and to give the commission a greater degree of discretion and flexibility than is now provided by the words "as nearly as may be" in applying a standard of earnings in an effort to maintain railroad credit. It is proposed that a varying percentage of fair return be applied to the commission's proposed "rate base," but it is pointed out that the "fair value" provision of the present law could be retained as it stands if the other recommended changes are adopted. The commission also feels the need of much greater jurisdiction over the processes of consolidation, possibly even to the extent of power to require a noncarrier company to divest itself of a controlling interest in a railroad.

The specific recommendations, in addition to those mentioned, several of which are repeated from previous reports, are:

That for section 15a of the interstate commerce act a new section be substituted which will eliminate the present recapture provisions; substitute a modified rule of rate regulation for that now contained in paragraph (2), recognizing that because railroad earnings will inevitably fall below the standard level in times of business depression they may properly be permitted to rise above it in times of prosperity, and stressing the need for maintaining an adequate national transportation system and the consequent need for maintaining railroad credit; and substitute a stable rate base which may be kept current by accounting methods for a base reflecting what is termed fair value of carrier property for rate-making purposes. In this connection repeal of section 5 (6) (b) and the modification of section 19a (f) are also recommended.

That section 17 of the interstate commerce act be amended so that the commission may be authorized to delegate to individual commissioners and employees the power to perform specified duties and to consider and determine specified matters, subject to the limitations and conditions suggested in our report dated April 25, 1930, to the chairman of the Committee on Interstate and Foreign Commerce.

That the act be amended so as to require that the rates and practices of forwarding companies engaged in interstate commerce shall be reasonable and nonprejudicial; to require such companies to file with us and strictly observe their published schedules of rates and charges; and to provide penalties for departures therefrom or for the granting of concessions or rebates by means of any device whatsoever to any shipper, and make the administrative provisions of the act applicable for the enforcement of the duties so imposed.

That the commission be given access to and jurisdiction over the accounts of the refrigerator-car companies through the agency of which carriers by railroad subject to the act furnish protective service against heat or cold to perishable traffic, and also adequate supervision and control over the arrangements for service and compensation therefor which the carriers by railroad make with these refrigerator-car company agencies.

That section 5 (2) of the interstate commerce act be amended so as to bring within the jurisdiction of the commission for approval or disapproval any acquisition of the control of a railroad which would result in bringing that railroad into affiliation with, in control of, or under the management of another railroad, whether the acquisition be by holding companies or otherwise; and that when a holding company is thus permitted to control a carrier by railroad, directly or indirectly, through ownership of stock, thereafter the accounts and capitalization of that holding company shall be subject to regulation by the commission. It is also suggested that it may be desirable to authorize the commission to require the divestment by any non-carrier company of a controlling interest in a carrier by railroad subject to the act, if such stock interest has not received the approval of the commission and is found to be prejudicial in any respect to the plan of consolidation adopted by the commission under section 5 (5) of the act.

That section 15 (4) of the interstate commerce act be amended so as to restrict the so-called "long-haul right" to

originating carriers, or subsequent carriers after they secure possession of the traffic.

That the interstate commerce act be amended so as to restrict our power to award reparation (1) under the first four sections thereof to the period commencing 90 days prior to the date on which the complaint is filed, and (2) in the case of overcharges under section 6 to the period of six months prior to the filing of the complaint, such periods to be subject to the existing exceptions stated in paragraph 3 (c) and 3 (d) of section 16, modified to conform with this recommendation; and that actions at law by carriers for the collection of undercharges be limited to the period of six months from the time the cause of action accrues.

That in view of conflicts of authority between the standard time zone act of Congress and recent legislation of some of the States, this field be either more completely occupied by act of Congress or left wholly to the States.

That the hours of service act be amended so as to make more definite and specific the requirements with respect to aggregate service and to prevent so-called short releases for the purpose of extending the time in service beyond the statutory limitations.

That in view of the diversion from the carriers of large parts of awards of compensation for the carriage of the mails, through the payment of counsel fees upon a contingent basis, Congress consider the prevention of further diversions of this character, if and when other awards of compensation are made, by a limitation in the appropriation bill.

That sections 10 (1) and 20 (7) of the interstate commerce act be amended so as to make them apply specifically to independent contractors and their officers and agents.

That the present exemption provisions of sections 1 (22), 15a (1), and 20a (1) of the interstate commerce act, applicable to electric railways, be amended by substituting provisions exempting all electric railways except such as interchange standard freight equipment with steam railways and participate in through interstate freight rates with such carriers, provision to be made for exemption of particular electric railways falling within the excepted class, if upon application they are able to show to the satisfaction of the commission, after notice and opportunity to be heard, that they are not affected with an important national interest so far as the provisions in question are concerned.

That section 18 of the merchant marine act, 1920, be amended so that its provisions will clearly not be applicable to this commission; that section 27 of this act be reconsidered by Congress in the light of the circumstances set forth on page 2 of our thirty-ninth annual report for the year 1925; and that section 28 also be reconsidered in the light of the circumstances set forth on pages 13-14 of our thirty-fifth annual report for the year 1921.

That section 1 of the interstate commerce act be amended to provide for the punishment of any person offering or giving to an employee of a carrier subject to the act any money or thing of value with intent to influence his action or decision with respect to car service, and to provide also for the punishment of the guilty employee.

That, subject to appropriate exceptions, the use of steel or steel underframe cars in passenger service be required, and that the use in passenger trains of wooden cars between or in front of steel or steel underframe cars be prohibited.

Following are some extracts from the Commission's comments:

The Railroad Future

In the report in the *Fifteen Per Cent Case, 1931,* we made certain comments upon the future of the railroads. It was made evident in that proceeding that distrust in railroad securities upon the part of investors had reached serious proportions. This distrust is due primarily to the very large reductions in railroad earnings which have accompanied the economic depression. The chief cause of these reductions has been loss of traffic. It has been forgotten that in such depressions the railroads suffer severely. Their traffic is a barometer of general business conditions. But, as further pointed out, the decline in earnings brought about by prevailing conditions is not solely responsible for the distrust which investors harbor. That has been much accentuated by the rather sudden awakening to the fact that the railroads are now faced by serious competition from other, largely new, and developing means of transportation. And it has been further intensified by the widespread publicity which the railroads and the holders of their securities have deemed necessary in the pursuit of restrictive and regulatory legislation for the other forms of transportation and in their further attempt to secure a general rate increase.

This presently existing distrust is natural but quite undue. The most effective remedy will be the economic recovery of the country. When business conditions begin to improve, railroad traffic and earnings will improve in harmony with them, just as they have in the past. Too much weight ought not to be attached, therefore, to the present discouragement of investors. When railroad earnings take a sharp turn upward, as in due time they will, railroad credit will also rise.

Yet the credit situation is sufficiently serious not to be dismissed with only general comment. One impression which has gained considerable currency among investors is that the commission has been unduly repressive, and in particular has been reducing railroad revenues by a process of gradual but continual "whittling away" of freight rates. We do not believe that this impression is shared by those who are well acquainted with the commission's activities.

It is due to two things: One is the fact that in the years succeeding the enactment of the transportation act, 1920, the aggregate earnings of the railroads have never equaled 5.75 per cent of our estimate of the fair value of aggregate carrier property. The other is the fact that freight earnings per ton-mile have shown a slight tendency to decrease in recent years.

We also pointed out that until the beginning of the depression in 1929 railroad credit, in general, had continually improved. * * * It is also the fact that the failure to attain the 5.75 per cent mark for aggregate earnings can with accuracy be ascribed wholly to the continued decline in passenger traffic. Freight earnings, considered alone, were in general fully up to or above that mark. Freight revenue per ton-mile has shown a slight tendency to decrease. * * *

With respect to the competing transportation agencies which are now exerting an adverse effect upon railroad earnings, we discuss in another part of this report the steps which may be taken by Congress through legislation to improve the situation. Undoubtedly there is much which may be done with general advantage along these lines to place such competition upon a fair basis, to minimize purely destructive competition, to stabilize rates with benefit to general industrial conditions, and to promote proper coordination of all transportation agencies.

But, as pointed out in the report in the *Fifteen Per Cent Case, 1931,* there is much which the railroad managements may also do to help themselves under the conditions which now exist. There is greater opportunity for the exercise of initiative and enterprise in railroad operation and management than there has been for many years. * * * We have confidence in their ability to rise to the needs of the occasion.

Lighter Trains and Lower Fares

As indicated in the report above cited, foremost among the problems to be solved is that presented by the passenger service. Even now, with freight traffic at a minimum, the railroads would be earning enough to stabilize their credit, if they were able to conduct the passenger business as profitably as the freight business. Much has been done to meet this situation, particularly by curtailment in passenger service. A little has been done in the way of pooling competitive train service by rival lines, although the opportunities in this direction are very far from being exhausted. But there are many other possibilities, as in the direction of better service with lighter trains operating at greater speed and with lower fares. Trial and experiment will be needed before the solution is reached. Electrification may help under certain conditions. The point is that here is a problem which requires drastic attention and genuinely creative enterprise.

Much the same may be said of the less-than-carload freight service and even of the carload service. As stated in the report in the case cited, the railroads have so many and so great inherent advantages of economy, particularly in the case of the longer hauls and the heavier traffic, that we can not believe that they will not be able to withstand the competition of the motor trucks. But the service must be provided which the shippers demand and require, and in this connection it is probable that motor service may with advantage be used to supplement or to coordinate with the rail service, bringing the combined service to the store door. The possibilities in this direction are many. * * *

Many of these changes will require expenditures of capital, but the provision of the necessary funds should follow upon adequate demonstration that net savings will result from the expenditures. In connection with all of these matters, the railroads can with advantage pursue a policy of greater cooperation than has heretofore marked their activities. They should be able to combine to a greater extent than heretofore in research and experimentation, so that the burden will be equitably distributed over the entire industry. Already this is being done by the electric railways. * * *

Wastes of Inter-Railroad Competition

The waste in revenues and expenses resulting from undue and unwise competition of the railroads with each other we believe to be of very large proportions. In the investigation in Ex Parte No. 104, we shall endeavor to examine into specific

instances of such waste. But this is a matter which the railroads should follow up on their own initiative and without this outside aid. If they do not, it may be that a comprehensive investigation adequately financed and under the direction of Congress may at length prove desirable. Experience has shown that the traffic pressure which large shippers strategically located are in a position to exert upon the railroads is so great that the reduction of competitive wastes by the carriers upon their own initiative is surrounded by great practical difficulties.

Such reduction of waste is in entire harmony with the spirit of the Transportation Act, 1920. Congress there looked beyond the individual railroad to the concept of a national transportation system. It pointed the way to the better realization of that concept in the consolidation provisions. It went to the extreme of removing the barriers of restrictive Federal and State anti-trust legislation which might otherwise stand in the way. Short of consolidations, it opened wide the door to agreements for the pooling of traffic and of revenues, whenever it could be shown to our satisfaction that such agreements were in the public interest. Progress in unifications and greater use of the pooling provisions will help in improvement of the general situation. But the problem can not be wholly solved in this way. Nor is there reason for subordinating proper cooperation of railroads to the necessarily slow realization of any consolidation program.

Section 15a "Unworkable"

Since the enactment of the transportation act, 1920, section 15a has been a storm center of controversy. The early attack on this section was based on the idea that it constituted a governmental guaranty of carrier earnings. Events have proved the contrary. Attack now centers on the idea that the plan of regulation embodied in the section runs counter to sound economic principles, misleads, and is unworkable.

In our last annual report we expressed the view that the practical objections to recapture outweigh its theoretical advantages, and "that the wiser course to pursue is to repeal the recapture provisions in their entirety, rather than attempt to improve them by amendment." We pointed out, however, that since recapture has from the beginning been linked in thought and theory with the other provisions of section 15a, the question would inevitably arise, if the recapture provisions were repealed, whether the entire section "ought not to be repealed, or at least superseded by some different statutory provision having a like fundamental purpose."

Upon further consideration of the subject in a special report to the Senate Committee on Interstate Commerce, dated January 21, 1931, we reached the conclusion that section 15a ought to be superseded by a new section, and gave our reasons therefor.

The matter divides itself into three separate but related phases, as follows: 1. Recapture. 2. Rule for rate regulation. 3. Rate base.

As indicated, our recommendation that the recapture provisions be repealed does not mean a retreat from what is one of the outstanding features of the transportation act, 1920, namely, emphasis on the need for maintaining an adequate national transportation system and the consequent need for adjusting regulation in some considerable degree to the varying financial necessities of the individual lines. It means only that we regard recapture as a cumbersome, wasteful, and largely ineffective means of adjustment, in some respects dangerous as well. The problem of the weak lines can be dealt with more effectively in other ways.

The objection to the rule of rate regulation set forth in paragraph (2) is, to use language which we employed in the *Fifteen Per Cent Case, 1931,* that it cherishes "elusive hopes that by mere changes in rates railroad earnings can be made stable regardless of business conditions." Paragraph (2) as it stands does not, in our opinion, require us to disregard what is just, reasonable, and practicable in a vain attempt to achieve stability of earnings in that way. Nevertheless such an interpretation has been strongly urged, and many investors seem to have believed that the paragraph did constitute a virtual guaranty of earnings.

The substitute which we propose for this paragraph contains recognition of the principle that inasmuch as railroad earnings must inevitably fall below normal in times of depression, since railroad traffic reflects business conditions very closely, they may properly be permitted to rise above normal in times of prosperity. Nor does it abandon a standard of earnings, such as is contained in the present provision, but it relates the standard definitely to normal conditions. In defining that standard it emphasizes the present and prospective transportation needs of the country and the "necessity, in the public interest, that the carriers shall be able to establish and maintain a credit sufficient to attract the capital required to meet these transportation needs."

In our report in the *Fifteen Per Cent Case, 1931,* we suggested that the recognition that earnings might properly be permitted to rise above normal in times of prosperity "might well be supplemented by a provision that some portion of the surplus accumulations shall be held in liquid form." Possibly no legislation is necessary to carry out this suggestion, but at all events it is a point which merits consideration by Congress.

In our proposed substitute for section 15a we have provided for what is termed a "rate base" in place of the "fair value" of the property. In essence, disregarding details, this rate base is built up by taking the cost of reproduction new of road and equipment at the so-called 1914 unit prices, as found in our basic valuation, adding the then present value of land, bringing the total up to date by adding the net increase in carrier property since valuation date as shown by the accounts when correctly kept, deducting the amount of the carrier's depreciation reserve, and adding a reasonable sum for working capital. The result would probably exceed somewhat the reasonable original cost of the property, minus the depreciation reserve, but would not be far from that figure.

We realize that this rate base proposal is likely to provoke considerable controversy. But if the recapture provisions are repealed, we believe that even the carriers will at length conclude that such a plan is both practicable and reasonable and will also result in large saving of both time and expense. The present trend of commodity prices and construction costs will no doubt have its effect in the consideration of the matter.

However, if Congress should decide to retain the "fair value" provision as it now stands, that can be done without abandoning the other changes which we recommend.

Congress Should Investigate Motor and Waterway Subsidies

The claim that a subsidy exists, so far as the motor carriers are concerned, rests chiefly on the great public investment, by both the Federal and the State governments, in highways and roads. It is asserted that the motor carriers do not contribute through special taxation their fair share to the support of this investment, so that part of the burden which they should carry is borne by other users of the highways or by general taxation. In the case of water carriers, a similar claim is made that they enjoy the benefit of a huge public investment, including the Panama Canal, the New York State Barge Canal, other waterways, and to some extent docks and terminals, without contributing their fair share to its support. With respect to the Inland Waterways Corporation, owned by the Federal Government and operating barge lines on the Mississippi and Warrior Rivers, it is also pointed out that the Government bears the burden of any deficit which it may incur in operation, and that its facilities are exempt from all taxation. In the case of the air carriers the claim that a subsidy exists is based on the contracts for the carriage of the mails.

As to the facts there is no agreement, and the claims made with respect to these alleged subsidies are vigorously disputed. We are not in possession of the facts and therefore can not report them to Congress. In our opinion the time has come to ascertain these facts by an impartial and authoritative investigation. Until that is done it is impossible to determine whether there is anything to correct, or if so, how correction should be accomplished. It is clear also that such an investigation can best be made under Federal authority. We recommend that Congress provide for such an investigation.

Motor Bus and Motor Truck Operation, 140 I. C. C. 685, decided April 10, 1928, was an investigation upon our own motion into motor-vehicle operations in interstate commerce by, or in connection or competition with, carriers subject to the interstate commerce act.* * *

Since this report was issued, the matter has received much consideration by Congress, although no legislation has yet resulted. There seems, however, to be quite general agreement that some such interstate regulation of motor busses should be established. While we adhere to those recommendations, the thing of essential importance is to make provision for some regulation. Once a start is made experience will then show the need for amplifying or extending it.

More recently, we found it desirable to institute a further investigation into motor vehicle operations, for the particular purpose of determining how these transportation agencies may best be coordinated with the operations of rail and water carriers in the interest of an efficient and adequate system of national transportation. We hope to be able to make a report on it very early in the coming year. In this report we shall undoubtedly make recommendations with respect to the public regulation of the interstate operations of motor trucks, but we can not, of course, undertake to forecast what those recommendations may be.

In the meantime, however, we may appropriately indicate, very briefly, some of the difficulties in connection with such regulation. Common carrier truck lines are an important, but not the most important, factor in motor-truck transportation. There are a much greater number of trucks which do not oper-

ate as common carriers but contract for the performance of specific transportation, as occasion permits, or which are operated exclusively by and for their owners, the latter usually being large industries or business houses. To what extent the operations of these motor trucks which are not common carriers can lawfully be subjected to public regulation is a question which can not yet be answered with any certainty.

Regulations made necessarily by considerations of public safety in the use of the public highways can undoubtedly be imposed on all motor vehicles, covering such matters as the size of the vehicle, its weight including lading, qualifications of drivers, and lighting. Many States are imposing such restrictions under the police power upon motor vehicles operating over their highways, regardless of whether they are engaged in intrastate or interstate operations. There is, however, no uniformity in these regulations, although that is plainly desirable. Perhaps a reasonable degree of uniformity can be attained by joint action of States, but it may be that some action by the Federal Government is feasible and needed in the attainment of that end. If an investigation is authorized by Congress, such as we have recommended in the first part of this discussion, we suggest that this investigation might also be extended to this matter of uniformity in public-safety regulations.

At the present time water carriers engaged in interstate commerce are under our jurisdiction, with respect to rates, so far as they join with rail carriers in through transportation "under a common control, management, or arrangement for a continuous carriage or shipment." Their port-to-port rates are not subject to our jurisdiction, except in instances where we have permitted rail carriers under the Panama Canal act to continue in control of water carriers. In such instances all of the interstate rates of the water carriers, including their port-to-port rates, are under our jurisdiction. In all other cases, however, the latter rates are not subject to any public regulation whatever, except to a very limited extent by the United States Shipping Board in the case of ocean and lake carriers. It is now urged, chiefly by the rail carriers, that the port-to-port rates should be subjected to complete public regulation.

This is a matter which we are not authorized to investigate, and therefore have not investigated. Information which has come to us in connection with our inquiries into rail rates, however, suggests that under present conditions there may often be an instability and uncertainty in these port-to-port rates, and a tendency toward purely destructive competition, which are opposed to the public interest as well as to the interest of competitive rail carriers. Without expressing any conclusions upon this point or as to where public regulation should be lodged, if it is deemed desirable, we do recommend that this general subject be made the subject of an investigation or consideration by Congress.

The transportation of oil or other commodities, except water and natural or artificial gas, by pipe line is subject to our jurisdiction in certain respects, but only a few complaints in regard to such transportation have been presented to us, so that we have had comparatively little occasion to exercise this jurisdiction. We have made no investigation to determine whether any further public regulation of the interstate operations of pipe lines is necessary in the public interest. The same may be said of transportation by air, over which we now possess no jurisdiction whatsoever.

Work of the Commission Bureaus

Recapture work still occupies a large part of the time of the accounting and valuation bureaus and the accounting examinations to determine the correct net railway operating income have continued to require the services of practically all the available field accountants during the entire year, preventing any general examinations of carriers' accounts under Section 20. The tentative draft of the accounting classifications for steam railroads is now being revised to meet the requirements of the depreciation order and it is intended to have them effective on the same date, January 1, 1933.

During the year the commission issued certificates authorizing 244 miles of new construction, abandonment of 1,019 miles, and operation or acquisition and operation of 1,636 miles. Since the effective date of the act the commission has authorized 9,621 miles of new railway construction, of which 6,049 miles have been completed. Authorizations have been issued on 14 applications for acquisition of control. Issuance of $750,092,636 of securities has been authorized during the year and certificates of notification of the issue of $314,932,044 of notes maturing within two years were filed. Of the securities authorized $476,983,275 represented actual issue, $174,432,209 conditional issue, and $98,677,152 nominal issue and about 54 per cent of the securities authorized for actual issue were for conversion of other securities and for refunding purposes.

Temporary Financing

Many carriers have resorted to temporary financing to meet their current requirements and of the short-term notes, $237,297,248 was to meet current corporate requirements. On sales of equipment obligations during the first six months of 1931 the average cost to the carriers was 4.06 per cent, as compared with 4.75 for the year 1930, and on bonds the average cost was 4.68 per cent as compared with 4.915 in 1930. During the year $15,162,355 was repaid on account of principal of loans under Section 210 and at the close of the year the outstanding loans amounted to $33,998,585.

The number of pending formal cases on the commission's docket as of October 31 was less than for many years, 1,904 as compared with 2,352 the year before. There was a reduction of 391 in the number of complaints filed and the commission disposed of 1,623 cases as compared with 1,547 during the previous year.

Rate adjustments were protested and suspension asked in 439 instances, of which 125 represented reductions and 228 represented increases. The commission suspended tariffs in 123 instances and refused to suspend in 195 instances.

The report of the Bureau of Safety calls attention to the increased safety to the traveling public as deserving special mention. During the year ended June 30 steam railroads carried 707,986,505 passengers 26,785,642,000 miles with but 50 fatalities or 1 for each 537,512,840 miles traveled.

The Bureau of Statistics calls attention to the decline in the number of nearly all classes of annual reports. In the case of steam railroads the number filed in 1920 was 1,600 and in 1930 it was 1,348. The decline is said to be chiefly explained by the progress of unification. The total number of annual reports filed was 2,072, as compared with 3,156 in 1920.

Valuation

The work of the Bureau of Valuation has been concentrated largely upon the preparation of valuation data for and the hearing of recapture cases. All hearings on protests to tentative reports upon all railroad properties which were included in the original inventorying and field investigation have been concluded. The hearings embraced 766 cases, covering 234,859 miles. Final valuation reports have been adopted in 947 cases, covering 181,848 miles. The 22 remaining cases will be issued soon. In the work of bringing valuations up to later dates, examinations have been made on 850 operating systems for an average period of 10.9 years subsequent to the various dates of valuation. Returns have been received for approximately 1,862,000 mile-years out of a possible total of 2,750,000 mile-years necessary to bring the reports down to December 31, 1927, and the verification of the returns is approximately up to date. Requests have been made upon all carriers for reports for the years 1928, 1929, 1930, and annually thereafter. Five hundred and thirty-two systems have filed the returns for 1928 and 1929 and about 280 have filed for 1930. Attention is called to the current valuations studies and data presented by the Bureau in the hearing on the 15 per cent rate case, which, the report says, reveal the fact that the valuation work has now been

brought to a point where, if kept current, it is available for the many practical uses for which it was designed. "While we are already thus fortified, so far as valuation is concerned, to deal with problems concerning carriers of the continental United States as a whole or by groups," the report says, "not until our Order No. 3 work reaches currency will we be in a position to have current valuations of individual roads or such detail as is contained in the underlying reports of our primary valuations."

Regarding the investigation of practices of carriers, Ex Parte No. 104, the report says the practices will chiefly be those brought about by pressure of competition and that "in such situations it is often difficult for the carriers to discontinue a particular practice, even if they realize that it is exerting an adverse effect upon income, but this difficulty may be overcome by public disclosure of the facts, provided the facts show need for discontinuance." The investigation will, however, embrace such other matters as the commission believes merit investigation and which it has facilities to investigate.

Under the head of holding companies the report discusses the report of W. M. W. Splawn as counsel to the House committee on interstate and foreign commerce and says the commission concurs in the recommendation that Congress give consideration to the necessity for legislation to deal with past acquisitions of railway properties, and thinks that it is probably within the constitutional power of Congress and may be desirable to require the divestment by a noncarrier company of a controlling stock interest in a rail carrier, if it has not been approved by the commission and is found to be prejudicial to the commission's plan of consolidation. It also believes that if a holding company is allowed to control a rail carrier, its accounts and capitalization should be subject to regulation by the commission, because "the present financial depression has brought into clear relief the evils involved in permitting stock equities in railroad companies to be made the basis for the issue by holding companies of unsupervised securities, including funded debt and preferred stock."

Suggests Centralized Forwarding Company on Express Agency Basis

In renewing its recommendation for regulation of freight-forwarding companies, the commission says it is giving attention to the possibility that other steps should be taken with respect to these companies and the service they perform. It says the railroads are now supported principally by their carload freight service and that it has been suggested that the less-than-carload freight service, probably relatively unprofitable, could be handled with much greater efficiency and economy through a centralized agency employed by the railroads collectively, just as the express service is now handled. "It may be, also," the report says, "that if such a centralized agency were established, it could with advantage take over and perform the services which the freight-forwarding companies are now performing in a decentralized, and, in some respects, unsatisfactory way." In recommending that the commission be given jurisdiction over refrigerator car companies, the commission says "it is anomalous that we should have no authority over these refrigerator car companies, nor access to their accounts except as a matter of grace. It is likewise anomalous that we should have no control over arrangements for service and compensation therefor which the rail carriers see fit to make with these pseudoprivate agencies."

Payments into the commission's general railroad contingent fund have amounted to $10,681,249, but the fund has not been available and the bulk of it has been invested in government bonds which have added $2,485,613 in interest. The Bureau of Accounts has now made 3,866 examinations for the purpose of determining correct net railway operating income. Combining the results set forth in final reports with the tentative determinations, the accounting examinations result in increasing the net railway operating income $143,024,863 in 2,359 cases, and decreasing it $83,303,892 in 1,152 cases, a total net increase of $59,720,970. The combined proposed and tentative report cases upon which action has been taken and is being taken now number 190 and involve an approximate amount of $82,601,072 recapturable excess income.

In recommending that the commission be given power to delegate authority to individual commissioners and employees in minor cases, the report says that this would enable the commissioners to devote more time and attention to the matters of major importance, "of which there is an abundance," expedite the handling of the commission's work generally, and give more opportunity for oral argument before the body rendering decision in the first instance.

The report includes a review of the 15 per cent rate case and, because of the importance of the facts developed regarding competition, gives a summary of the evidence under the various classes of competing transportation for consideration in connection with the proposed legislation.

Unions Consider Lower Wage Proposal

CHICAGO was the mecca this week for organized railroad labor. After three full days of vigorous discussion of wage and employment matters the officers of the 21 organizations represented were still not in a position to announce any definite results from the series of individual and joint meetings of their general chairmen. On Wednesday afternoon representatives of all the organizations got together in one large room for final arguments. This joint session was expected to extend over at least two days and perhaps more. In any event decisions made in the joint meeting are required to be ratified by the organizations individually, so that the final announcement of what the railroad labor organizations propose to do about the suggestion that they voluntarily accept a 10 per cent reduction in pay, and about their own desires for a six-hour day and for guarantees of continued employment, was not expected until the end of the week. No inkling of the trend of the discussions was permitted to get out by the organizations' officers. Rumors that the delegates were of a state of mind in which they recognize the inevitability of wage reductions were about equal in number to the rumors that the wage reductions would be resisted and a counter attack made to advance the six-hour day and unemployment relief proposals of the brotherhoods.

Officers and general chairmen of the five principal railroad labor organizations gathered in Chicago on December 7 to hear the report of the executive committee of the Railway Labor Executives' Association and of the committee of 35 representing the five leading rail-

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New Executives for Burlington and Great Northern

Ralph Budd to become president of former road on January 1—Will be succeeded by William P. Kenney

RALPH BUDD, president of the Great Northern, was elected president of the Chicago, Burlington & Quincy at a meeting of the board of directors in New York on December 8. He will succeed F. E. Williamson, who, on January 1, will become president of the New York Central, as reported in the *Railway Age* of November 14. William P. Kenney, vice-president and director of traffic of the Great Northern, will succeed Mr. Budd as president of that road, his election to take place at the next meeting of the board of directors. Although this is the first time that Mr. Budd has been connected directly with the Burlington, he is not unfamiliar with the railway, for the Great Northern is a joint owner with the Northern Pacific of the Burlington, and he has been a member of the board of directors and of the executive committee of the road for some years.

Ralph Budd

William P. Kenney

Two things have marked the administration of Mr. Budd on the Great Northern of which road he has been president since 1919. These are the physical improvement of the property and the extension of its lines into new revenue producing localities. With respect to the latter, it is significant that in years when the tendency of railway mileage has been to decline rather than to increase, the Great Northern has so extended its system that in 1930 the average miles of road operated was 8,366, as compared to 8,188 in 1926.

Upon Mr. Budd's election to the presidency of the Great Northern in 1919, an extensive improvement program was undertaken, for the purpose of putting the property in the best possible condition for efficient operation. It was estimated that this program would require 10 years for completion, involving the expenditure of $160,000,000. During this time both rolling stock and line were thoroughly modernized, ballasting, the laying of heavier rail and the purchase of larger and more powerful locomotives, designed to eliminate the necessity for many helper engines on the mountain divisions, having occupied prominent places. The result of these heavy expenditures and the determined way in which the program of improvements was pushed to completion is that the Great Northern is in excellent physical condition, amply supplied with cars and locomotives, and ready to handle efficiently any increase in business which may come to it.

Perhaps the outstanding accomplishment of the Great Northern under Mr. Budd was the relocation of the main line across the Cascade divide, including the con-

struction of the Cascade tunnel, eight miles in length, and the electrification of 73 miles of line between Wenatchee, Wash., and Skykomish. This project, which was completed in 1928 at a cost of $25,000,000 completely changed the Cascade crossing of the railway, involving the relocation of 20 miles of line east of the tunnel. The effect of this improvement was to provide a line nine miles shorter than the old line, with a summit elevation 502 ft. lower and 3,674 deg. less curvature. The total length of maximum (2.2 per cent) grade was reduced from 25 miles to 6 miles, and the necessity of using helper locomotives on passenger trains was entirely eliminated.

The most striking extension of Great Northern rails to new territory was the one recently completed—that from Klamath Falls, Ore., south to Bieber, Cal. This 92-mile extension, in connection with the extension of the Western Pacific from the south, gives the Great Northern a means of entrance into San Francisco, and in addition to bringing railway service to virgin territory, opens up a new traffic route between the Pacific Coast and the middle west. Entrance to Klamath Falls was made possible through the purchase of a short line railway, the purchase also of a one-half interest in the Oregon, California & Eastern, and the construction of 40 miles of new lines to connect these two properties.

As on most other railways, traffic on the Great Northern reached its peak in 1928, when railway operating revenues were $126,737,091. There was a decline in railway operating revenues to $104,996,076 in 1930. The closest control over operating expenditures and the greatest efficiency in operation could overcome only a part of this loss in revenue, so that while operating expenses declined from $83,235,116 in 1928 to $72,565,878 in 1930, there was a reduction in the net from railway operation, from $43,501,975 to $32,430,198. There has naturally been a further decline in traffic this year, resulting in a fall in net railway operating income for the first nine months of 1931, from $13,913,179 to $7,625,777. The Great Northern, like all other roads, has been suffering greatly from the decline of general business during the last two years. Under Mr. Budd's administration, however, it has maintained its property and has courageously prepared itself for the increase in traffic which will inevitably accompany an improvement in general business.

Mr. Budd leaves one well-maintained and efficiently-operated property to assume executive charge of another well-maintained and efficiently-operated property. He will face much the same conditions with respect to traffic on the Burlington as on the Great Northern.

It seems appropriate that a traffic man should become president of the Great Northern at a time when traffic is its greatest need. As stated before, the Great Northern is in excellent physical condition and all it needs to restore it to its position as a highly-profitable property is an increase in traffic. The Great Northern has not been compelled, like other railways, to face waterway and pipe line competition. Like other transcontinental lines, of course, it loses a large amount of traffic to coast-wise vessels operating through the Panama Canal. Also, it has suffered a substantial loss in passenger traffic, which has steadily grown more serious because of the impossibility of reducing passenger train miles in an amount to correspond to the decline of travel by train. The loss of l.c.l. freight is also a serious matter and one for which the management has not yet found a satisfactory solution.

Under Mr. Kenney's direction, the Great Northern has instituted a number of steps in an effort to maintain its traffic. From the passenger standpoint it has made a strong bid for long-haul traffic through the operation of de luxe passenger trains, of which the most notable example is the Empire Builder. The success of these trains has been due not only to their fast schedules and excellent equipment but also to the campaigns of advertising and traffic solicitation carried out under Mr. Kenney's supervision. An impressive radio campaign was a feature of this program. Several years ago the Great Northern organized a system of motor coach lines through a subsidiary, the Northland Transportation Company, and it still maintains an interest in and benefits from the operations of its system, although it is operated now by the Northland Greyhound Lines, in which the Great Northern has only a part interest. The traffic problem of the Great Northern, like that of other roads, is not yet solved, however, and it constitutes the first task which Mr. Kenney will assume as president of the road.

Ralph Budd

Ralph Budd was born at Waterloo, Iowa, on August 20, 1879, and graduated at Highland Park College, Des Moines, Iowa, in 1899. He entered railway service the same year in the engineering department of the Chicago Great Western, serving in various capacities, including that of assistant engineer, until 1902. During the next four years he served successively as road-master, general superintendent of construction, and division engineer on the Chicago, Rock Island & Pacific. From 1906 to 1909, Mr. Budd was chief engineer of the Panama Railroad, returning to this country in the latter year to become chief engineer of the Oregon Trunk, the Spokane, Portland & Seattle and the Spokane & Inland Empire. In 1913, he was appointed assistant to the president and chief engineer of the Great Northern and was elected executive vice-president in 1918. He was elected president in 1919. During the summer of 1930, Mr. Budd made an extensive inspection trip over the Russian railways at the request of the Soviet Government, and acted as an adviser on many problems of railway construction and operation which the Russian railways had encountered.

William P. Kenney

William P. Kenney was born at Watertown, Wis., on January 10, 1870, and entered railway service in November, 1888, as a telegraph operator on the Chicago Great Western. During subsequent years he served as yard clerk, clerk in the local freight office at Minneapolis, and clerk and stenographer to the general agent at Minneapolis, being appointed contracting agent in May, 1892. During part of 1899, he served as contract agent of the Empire Line, during the latter part of 1899 being appointed chief clerk in the general freight office of the St. Paul & Duluth (now part of the Northern Pacific). Mr. Kenney was appointed chief clerk in the general freight office of the Northern Pacific in July, 1900, and in September, 1902, was appointed to a similar position on the Great Northern. He was promoted to assistant general freight agent in April, 1903, and was promoted to assistant to the fourth vice-president in January, 1905. Mr. Kenney was made assistant traffic manager in May, 1908, and in September, 1911, was promoted to general traffic manager. He was appointed vice-president in charge of traffic in October, 1912, and was later made vice-president and director of traffic. While holding this position, he has also been a director and a member of the executive committee of the Great Northern.

Regulation of Competing Carriers Favored by Hoover

WASHINGTON, D. C.

REVISION of the methods of railway regulation and application of "approximate" regulation to competing transportation services are recommended by President Hoover in his annual message to Congress. Declaring that "the railways present one of our immediate and pressing problems," and that "the well-maintained and successful operation and the stability of railway finances are of primary importance to economic recovery," the President also proposes a method of immediate relief to some of those most in need of it by recommending the establishment of an emergency Reconstruction Corporation to make temporary advances upon proper securities to established industries, railways and financial institutions which cannot otherwise secure credit, and where such advances will protect the credit structure and stimulate employment.

"If we can put our financial resources to work and can ameliorate the financial situation in the railways," he said, "I am confident we can make a large measure of recovery independent of the rest of the world," and he referred to "the situation in our railways," along with the "large degree of credit paralysis" with which the country has been left, and the conditions abroad, as "the outstanding obstacles to recuperation."

The President also used some very pleasant language regarding the importance of the railways and their prosperity as being interrelated with the prosperity of all industries. He even referred to the "rehabilitation" of the railways, but in a rather indefinite way at the end of a long sentence.

The President did not go into details regarding the revision of regulatory methods, but he commended to the early consideration of Congress the "important and far-reaching recommendations" made by the Interstate Commerce Commission on the whole subject, which would seem to indicate at least general approval of the recommendations made by the commission in its annual report, published elsewhere in this issue, which he is understood to have discussed recently with members of the I. C. C. In addition to proposing a complete investigation and some regulation of other forms of transportation the commission proposes a radical revision of the rule of rate-making of the present law, as well as many other amendments designed to round out its regulatory powers. The President also says the roads should have more effective opportunity to reduce operating costs by proper consolidation.

Many reports and rumors had been published in the newspapers to the effect that the President and his advisors had been considering the revival of a revolving fund from which loans could be made to railways, similar to that provided for in Section 210 of the transportation act for loans during the two years after the termination of federal control. It is understood, however, that no such proposal had been made by the railways themselves, although many railway executives have recently been called to the White House to discuss the general situation. The plan which he now proposes is of the nature of that on which the War Finance Corporation was operated and would deal with railways on the same plane as other industries. The President says that the Treasury should be authorized to subscribe a reasonable capital to it, that it should be given authority to issue its own debentures, and that it should be placed in liquidation at the end of two years. "It may not be necessary to use such an instrumentality very extensively," the President said. "The very existence of such a bulwark will strengthen confidence. Its purpose is by strengthening the weak spots to thus liberate the full strength of the Nation's resources."

Such a corporation might be able to come to the aid of a railroad having difficulty in meeting maturities of principal in the next year or so and the President seemingly was relying on the rate increase pooling plan to take care of interest requirements. The railway bond maturities for 1932 are very small as compared with other years, only $70,299,513, although there are $110,782,506 of equipment obligations coming due and the railways during the past year have resorted to temporary financing to the amount of $314,000,000 largely to meet current requirements. In 1933 the bond maturities amount to $187,697,740.

The President also points out that "as an aid to unemployment the federal government is engaged in the greatest program of public-building, harbor, flood control, highway, waterway, aviation, merchant and naval ship construction in all history," but he says that "we must avoid burdens upon the government which will create more unemployment in private industry than can be gained by further expansion of employment by the federal government," and that "we can now stimulate employment and agriculture more effectually and speedily through the voluntary measures in progress, through the thawing out of credit, through the building up of stability abroad, through the home loan discount banks, through an emergency finance corporation and the rehabilitation of the railways and other such directions."

The paragraph especially devoted to railways follows:

> The railways present one of our immediate and pressing problems. They are and must remain the backbone of our transportation system. Their prosperity is interrelated with the prosperity of all industries. Their fundamental service in transportation, the volume of their employment, their buying power for supplies from other industries, the enormous investment in their securities, particularly their bonds, by insurance companies, savings banks, benevolent and other trusts, all reflect their partnership in the whole economic fabric. Through these institutions the railway bonds are in a large sense the investment of every family. The well-maintained and successful operation and the stability of railway finances are of primary importance to economic recovery. They should have more effective opportunity to reduce operating costs by proper consolidation. As their rates must be regulated in public interest, so also approximate regulation should be applied to competing services by some authority. The methods of their regulation should be revised. The Interstate Commerce Commission has made important and far-reaching recommendations upon the whole subject, which I commend to the early consideration of the Congress.

In proposing a reorganization of the Shipping Board and the transfer of its administrative functions to the Department of Commerce the President also said that the regulatory powers, to be left to the board, should be amended to include regulation of coastwise shipping "so as to assure stability and better service" and that it is also worthy of consideration that the regulation of rates and services upon the inland waterways should be assigned to such a reorganized board.

Inland waterway and harbor improvement are now proceeding upon an unprecedented scale, the President said, pointing out that during the current year over 380,000,000 cubic yards of material have been moved. The Mississippi waterway system, connecting Chicago, Kansas City, Pittsburgh, and New Orleans, he said, will be in full operation during 1933 and substantial progress is being made upon the projects of the upper Missouri, upper Mississippi, etc. Negotiations are now in progress on the St. Lawrence waterway.

Bills to provide for the creation of the Reconstruction Finance Corporation were at once introduced by Senator Walcott, of Connecticut, and Representative Strong, of Kansas. They provide for an initial capital of $500,000,000 to be subscribed by the Treasury and for the issuance of a maximum of $1,500,000,000 of debentures or other obligations. The corporation would be authorized to make loans to, or in aid of the temporary financing of steam railroads engaged in interstate commerce, when in the opinion of the board of directors of the corporation such railroads are unable to obtain funds upon reasonable terms through bank channels. All loans must be adequately secured and may be made for a maximum of three years, with a renewal for two years. The lending period would be limited to one year but may be extended by order of the President for another year.

I. C. C. Permits Loan Pool Plan

WASHINGTON, D. C.

RELAPSING from the unanimity displayed in its decision in Ex Parte No. 103 into the division of opinion among its members which is more characteristic when important policies are concerned, the Interstate Commerce Commission has withdrawn its requirement that the railroads pool the proceeds of the temporary emergency increase in freight rates conditionally offered them as a substitute for a 15 per cent advance and will permit the rate surcharges to go into effect to be administered under the loaning plan proposed by the Association of Railway Executives through the Railroad Credit Corporation. Without approving or disapproving the railroad plan, on the ground that loans between carriers are not within its jurisdiction, the commission is, however, relying on the good faith of the carriers to apply the funds to be derived from the increases in aid of financially weak railroads in accordance with the purpose expressed in its original report, to enable them to meet their fixed interest charges and thus avoid receiverships so far as practicable.

As a result increased revenues which the commission has estimated at $100,000,000 to $125,000,000 a year will begin circulating through railroad channels shortly after the first of the year, although, according to the plan, none of it will be available for loans for 80 days after the rates become effective.

R. H. Aishton, chairman of the Association of Railway Executives, at once called a meeting of the advisory committee and the member roads to be held here on Friday to make the necessary detail arrangements for putting the plan into effect. The first concern is to obtain the necessary formal assents, as the plan outlined in the petition to the commission provided that it should become effective only when those who have assented all agree that a sufficient number have assented to make it practically operative. Other matters to be arranged are the incorporation of the Railroad Credit Corporation and the election of its directors and officers. There are to be 12 directors, 5 from the eastern district, including one from New England, three from the western district, two from the southern district, one nominated by the American Short Line Railroad Association, and one at large who shall be president of the corporation.

Tariff-publishing agents will also try to expedite the work of preparing the necessary tariff supplements, which the commission has said it will allow to become effective on short notice, but which they were unable to prepare until they learned of the rate changes made by the commission, largely in response to their suggestions.

Without wholly conceding that its plan was illegal but admitting some legal difficulties, the commission, by a vote of 7 to 4, has withdrawn its pooling condition on the grounds that it has no authority to require such pooling, and that it was convinced that the railroads would not agree to accept its plan. It has also modified its report in several details as to the method of applying the rate increases, as requested by the carriers, and they will be allowed to become effective on less than the usual 30 days' statutory notice after being filed, perhaps by January 1. They are to expire March 31, 1933.

Commissioner Eastman, generally understood to have been the author of the pooling plan as outlined in the original report in this case made public October 17, has again appeared as a dissenter and was joined by Commissioners McManamy, Porter and Mahaffie in a long separate opinion declaring that "a sound plan is being exchanged for an inferior substitute." "It is a matter of great regret," he said, "that the carriers have shown an inability to grasp the idea which the Supreme Court has recognized and voiced with such clarity and strength, namely that the railroads are inter-related and mutually dependent parts of a national transportation system." Commissioner Lee, although concurring specially, said he was firmly convinced that the commission's plan was preferable to the loan plan proposed by the carriers but that, in view of the conditions in which the railroads find themselves, their application should be granted to the extent of permitting them to make the increases specified on condition that they make loans to the needy carriers at a nominal rate of interest and without security.

The majority report, which is very short, only six pages, refers to the rate increases as "comparatively small" and observes that "the rates to be paid by shippers will be the same under either plan." After discussing the objections advanced by the Association of Railway Executives it continues:

> We are not prepared to admit that the construction placed upon section 5(1) of the act by counsel for the carriers is correct, but we realize that the language contained in that paragraph is not sufficiently definite to exclude differences in views concerning its meaning, and that for this reason the legal difficulties mentioned have at least some foundation upon which to rest. Also, we have no reason for treating otherwise than as made in good faith the representations on behalf of the carriers to the effect that they will use the sums of money, which are to be placed in a pool as hereinbefore stated, to accomplish the purposes described in our original report. It is further true that we are impressed by the absence, on behalf of any carrier, of opposition to the loaning plan mentioned. In addition to the above, we believe it to be pretty clearly indicated, by matters called to our attention in oral argument and otherwise developed in the course of this proceeding, that an agreement to adopt and put in force the pooling plan provided for by us can not be obtained, and in the absence of such an agreement our plan could not be made effective, since, as above shown, we have no authority to require such pooling.
>
> For the reasons above set forth, and because we desire to act promptly in this proceeding, in accordance with the duties imposed and the authority conferred upon us by the interstate commerce act, and avoid delays which will be injurious to the general public, including the carriers, we hereby modify our original report to the extent of relieving the carriers from the necessity of complying with the pooling plan therein described. This will leave them free to apply in the premises their own loaning plan, but, since use of the latter plan will not be pooling, within the meaning of that term as used in section 5(1) of the interstate commerce act, and because loans by and between

common carriers, as such, have not been included within the jurisdiction conferred upon us by Congress, we neither approve nor disapprove either the loaning plan or the agency the carriers say they expect and intend to use in making that plan effective. However, we rely on them to apply the funds to be derived from the authorized increases in rates in aid of financially weak railroads in accordance with the purposes expressed in our original report and in the instant application pursuant thereto and the arguments thereon presented.

The original report is also amended to the extent of relieving the carriers from the restriction contained in the following:

> * * * The increases herein proposed should be accepted as an entirety. If, for competitive or other reasons, the carriers decrease any of the rates so increased, the amount of the decrease should be taken from the basic rates rather than from the earmarked increases provided herein. * * *

Objection had been raised to the imposition of the so-called double increase where there are movements subject to the act separated by an intermediate movement not subject to the act. This applied particularly to movements of ore and coal through lake and ocean ports. There are practical difficulties in the way of accomplishing this by general provisions, the report says. Therefore shippers and carriers are left free to endeavor to work out this situation between themselves.

In the appendix under the caption "Switching and Lighterage Charges" the report authorized 10 per cent increases for switching only. The omission of lighterage and floatage charges from the increases so authorized was unintentional. The same increases for these charges as for switching are now authorized.

Because of certain practical difficulties that exist in determining distances and in view of the smallness of the increases, the commission has concluded, upon more material consideration, to authorize an increase of 2 cents per 100 pounds in all less-than-carload rates.

In a revised appendix the articles originally made subject to increases of $3 and $6 per car, such as coal, ore, stone, etc., have been made subject to increases of 6 and 12 cents per 100 pounds or per ton, the assignment of the respective commodities to the respective lists having been made on an approximate weight basis.

A revised appendix, listing the commodities to be increased, which excepts most agricultural products, also makes certain changes in the classification of commodities, the desirability of which has become apparent since the original report.

Commissioner Eastman wrote a lengthy dissenting opinion saying: "The vital purpose which we sought to accomplish in the general interest through the pooling plan set forth in our report cannot be accomplished nearly as well by the plan which the carriers propose. Nor, since the majority now leave the latter plan wholly within the discretion of the carriers, is there definite assurance that the purpose will be accomplished at all. No occasion exists for beating such a retreat. Our plan is both lawful and reasonable. There is no sound reason for discarding it in favor of the inferior substitute which is now proffered." He recalled that the original report gave the carriers an opportunity to "mend the deficiencies of their case and propose increases, or other changes in rates, which could be justified," gave assurances, also "that such proposals would receive sympathetic and expedited consideration," and that "this opportunity still stands and remains open," but that the pool plan had also been offered as an emergency measuse "in the hope that it would help the general financial situation with benefit to all concerned," and "to poultice the sore spots which threaten the health of the national transportation system." The commission made no finding, he said, that the rates resulting from the increases proposed would be just and reasonable, and its report was not susceptible to either of the two interpretations upon it referred to in the petition of the Association of Railway Executives. "Neither did we regard these distributions as gratuities," he said. "On the contrary, our thought corresponded with that of the Supreme Court in New England Divisions Case."

Commissioner Eastman also included an argument as to the legality of the pooling plan and several criticisms of the carriers' plan. Under the commission's plan, he said, the benefits would be, first, the probable receipt by all the participants of greater revenue, following the ultimate distribution of the fund, than they now enjoy, and, second, positive protection, so long as the pool continued, against a very possible series of railroad receiverships which would further disturb the financial situation, destroy returning confidence, and postpone the day when railroad traffic, earnings, and credit generally will be restored to normal status. "Under the railroad plan," he continued, "the carrier may be tided over an immediate danger of default, but only at the expense of a further attenuation of its credit and a mounting indebtedness." The motive behind the commission's decision, he added, "is evidently fear that if the commission should adhere to the pooling plan, that plan might be rejected and the commission thereupon be held responsible for financial difficulties which might then ensue." But he submitted that there is no solid ground for such fear and that the carriers have been very careful to refrain from any final rejection of the plan.

"There has never been a time when a spirit of mutual co-operation and solidarity were more essential to the welfare of the industry," he concluded. "The time has surely come for the railroads, as it came for the sovereign states, 'to form a more perfect Union' which will 'insure domestic tranquillity, provide for the common defense, promote the general welfare,' If our plan had been accepted in the spirit in which it was suggested and put promptly into effect, certain recent and unfortunate developments in the railroad financial situation might have been averted."

Among the changes in the classification of commodities are: Cotton waste is added to the list of articles exempted. Lumber, shingles and lath; posts, poles and piling; box, crate, and cooperage materials; veneer and built-up wood; and products of forests not otherwise specified, are taken from the $3 a car list now changed to 6 cents a ton and added to the 12-cent a ton list. Products of mines, n. o. s., have been divided into two groups and some left in the 6-cent class while others are put into the 12-cent list. Asphalt, finished and artificial stone, and crude petroleum, have been taken from the $6 a car class and put in the 1 cent per hundred pounds class. Tobacco leaf, unmanufactured, has been transferred from the 2-cent to the 1-cent class. Soapstone forms or slabs, including firebox or furnace linings, tar and pitch, and animal and poultry feed, have been added to the 1-cent class.

Where rates are stated in schedules in dollars per car the respective increases shall be $7.50 per car if the increase is 1 cent; $10 per car if the increase is 2 cents; $3 per car if the increase is 6 cents per ton; and $5 per car if the increase is 12 cents per ton. No increase in switching, floatage or lighterage charges is to apply on articles in the list of exempted commodities.

Sorting of Hogs in Transit.—This is now allowed on the Chicago, Milwaukee, St. Paul & Pacific, in the case of shipments destined to the Pacific coast, at Bowman, Hettinger and Reeder, North Dakota; the privilege having been granted following informal negotiations with the Farmers' Union and the State Railroad Commission.

Unions Consider Lower Wage Proposal

(Continued from page 904)

road labor organizations, concerning their recent informal meetings with the committee of railroad presidents to discuss wage reductions proposed by the railways and the six-hour day and unemployment relief proposed by the labor organizations. The calling of the roll and the reading of this report consumed the entire afternoon of that day. This joint session followed a series of morning meetings held individually by the officers and general chairmen of three of the principal organizations—the Brotherhood of Locomotive Firemen and Enginemen, the Order of Railway Conductors, and the Switchmen's Union of North America. Representatives of the other two brotherhoods—the Brotherhood of Locomotive Engineers and the Brotherhood of Railroad Trainmen—who participated in the afternoon meeting, were not on hand during the morning. D. B. Robertson, president of the Brotherhood of Locomotive Firemen and Enginemen, and chairman of the Railway Labor Executives' Association, presided at all the joint meetings of the organizations. Prominent also were A. F. Whitney, president of the Brotherhood of Railroad Trainmen, A. Johnston, grand chief engineer of the Brotherhood of Locomotive Engineers, S. N. Berry, president of the Order of Railway Conductors, and T. C. Cashen, president of the Switchmen's Union of North America.

Following the preliminary meetings on December 7, at which they were told what had transpired at the conferences with the committee of railway presidents in New York beginning November 19, the general chairmen of each organization held individual meetings on the morning of December 8 to discuss the situation and to attempt to reach some decision as to what stand their organizations individually would take upon the questions at issue. These matters were further discussed at a meeting in the afternoon of December 8, in which all the officers and general chairmen of the five organizations participated.

Important though these meetings were, they were merely preliminary to the joint session which began on December 9. This was participated in not only by the representatives of the 5 principal organizations, but by representatives of 16 other railway labor unions as well. This meeting attracted approximately 1,500 general chairmen, representing all branches of organized railway labor, and the principal subject for discussion was the railroad proposal that the employees voluntarily accept a wage reduction of 10 per cent for one year.

News of the Interstate Commerce Commission's decision to grant part of the rate increase, requested by the railways, and without the "pooling plan" string tied to it, reached delegates of the meeting through the evening newspapers on December 7, but failed to excite much comment. Mr. Robertson's only statement concerning it was to the effect that it would not be taken into consideration by the organizations in their discussion of the wage reduction matter, since the organizations have already been working on the assumption that the railways would get this increase in revenue in one form or another.

The possibility that immediate action might be taken by the railways on any decision reached by the labor organizations also appeared when it became known that Daniel Willard, president of the Baltimore & Ohio, and head of the committee of nine railroad presidents with whom the Association of Railway Labor Executives had had their preliminary conversations on the questions at issue, was in Chicago. It was stated that Mr. Willard was not in Chicago officially in his capacity as head of the committee of railroad presidents, but his presence was, nevertheless, considered significant. He was expected to remain in the city for several days, which happened also to be the expectation as to the duration of the labor organizations' meeting.

Reports of a strike vote among maintenance of way employees of the Chicago & North Western were circulated at the labor meeting on December 8. The railroad ordered a reduction in the wages of section laborers on December 7. In 1927 as a result of arbitration the North Western established new scales for section laborers as a result of which it has paid these workers 37 cents an hour for the first year of service, 39 cents an hour for the second year of service and 41 cents an hour after two years of service. This rate has been higher than the scales for similar employees on the Burlington and Milwaukee, which operate under the same conditions as the North Western. In 1929 the organization representing the maintenance employees asked for changes in rules which would have resulted in an increase in the wages paid these men. This was submitted to mediation without result although the case remained open until recently. Last Spring the North Western proposed to reduce the wages of its section laborers providing for a rate of 38 cents an hour for employees on the lines between Chicago and Council Bluffs and between Chicago and Milwaukee and 35 cents an hour for section laborers on the other lines. This likewise was submitted to mediation but without result.

Last month the labor organization proposed that both its 1929 request for changes in rules and the 1931 request of the railway for reduced wages be submitted to arbitration jointly. This the management refused to do, on the grounds that an increase in wages such as that contemplated in the request for changes in rules is out of the question at this time and that the matter of whether or not the North Western should continue to pay its section laborers higher wages than those paid like employees on like roads was not a matter subject to arbitration. The management advised the employees of the impending reduction in wages on December 1 and the reductions went into effect a week later. This reduction is to put wages on the North Western in line with those on the Burlington and Milwaukee and has nothing to do with the activities directed toward general wage reductions.

Not all the activities affecting railroad employees, however, were centered in Chicago this week. The Southern Pacific, it was announced, is negotiating with its organized employees for a 10 per cent reduction. The company has ordered a reduction of 10 per cent, beginning January 1, in all salaries and wages except those covered by specific contracts or group wage agreements, or governed by the provisions of the Railway Labor Act.

Similar action was taken by the Illinois Central, which on December 8 announced that effective January 1, there would be a 10 per cent reduction in the pay of all officers and employees, except those working under group agreements or special contracts. Like most other roads, the Illinois Central was awaiting the conclusion of this week's labor meeting before instituting proceedings for the purpose of reducing the pay of the organized employees, also.

Odds and Ends . . .

Motor Bus Bags a Deer

Two or three months ago we reported the killing of a deer by an electric suburban train on the Lackawanna. Now we hear that a Missouri Pacific motor coach, not to be outdone by a mere railway train, has also killed a large deer, this time on the Missouri State Highway No. 67 about 10 miles north of Poplar Bluff.

"The Ballast"

The driving of the golden spike at Bieber, Cal., to connect the Western Pacific-Great Northern extensions between Keddie, Cal., and Klamath Falls, Ore., was not without its humorous aspects. Among these was a newspaper issued by members of the press to cover the celebration. Its title, "The Ballast—Something to fill in with," may convey an idea of the informality of its contents.

Flying Rattlesnake

While driving a gasoline car on the New York Central near Elmo, Pa., J. F. Leimgruber of Cleveland, Ohio, overtook a large hawk which was flying low. Getting to his feet, Mr. Leimgruber struck at the hawk as he passed under it. To his astonishment, a rattlesnake, more than three feet in length, dropped from the hawk's claws and fell across the controls of the car. Fortunately, the snake was badly injured and it was a relatively safe and simple matter to knock him overboard.

A "Markdown"

We are indebted to Carter S. Cole, engineer of the Copper & Brass Research Association, for the following story. "Two years ago," says Mr. Cole, "I was en route from Princeton to Roanoke on the Virginian, and we passed the station named Price. This station consists of an open wooden shelter along the side of the track not much larger than those commonly seen along interurban lines. In fact the station sign was about as large as the station. Very plainly under the sign someone had painted a large 30c. One of my companions in the car (evidently the supervisor of the section) remarked, 'There's that sign again. I have already painted that out three times this month'."

Lions Checked Here

It costs sixpence a day to house lions in the cloakroom of a station in Paris nowadays. For three days the Gare D'Austerlitz has played host to a pair of four-month old lion cubs, who spend most of their time asleep in a small packing case. Their owner is not a lion tamer, but a young woman who was asked by a colonial friend what he should send her for her birthday. "Lions," she replied—and a case of lions arrived by return mail. Their cage in the woman's home will take a day or two to construct. But if the lions are not taken away from the cloakroom tomorrow, bang will go another sixpence.—From The Daily Express, reprinted in the Railway Gazette (London).

A Quick Thinker

C. M. Henegar, switchman on the St. Louis-San Francisco at Birmingham, Ala., is a quick thinker, according to C. H. Baltzell, director of accident prevention of the railway. He relates the following story to support his judgment. At 4:15 p.m. on a recent day, switch engine No. 663 was working in the Birmingham terminal, moving a cut of 40 cars over the Eighth avenue crossing. Mr. Henegar who was working about 20 ft. from the south edge of the crossing, saw an automobile approaching at a high rate of speed on the opposite side of the train. Knowing that the driver could not avoid crashing into the side of this cut of cars on the crossing, Mr. Henegar immediately pulled the pin on the twenty-second car from the engine, which stopped the rear end of the train almost at once, so that the automobile crashed into the side of a car that was standing still. As a result of this action, the car was not dragged by the moving train and its occupant was saved from serious or possibly fatal injury.

A Communication . . .

Denies that Pooling Plan Was Suggested by a Commissioner

CHICAGO.

TO THE EDITOR:

My attention has been called to an editorial in the *Railway Age* of November 28, entitled "'Big Business' and the Railways", from which the following is quoted:

"One of the lawyers, Mr. Walter, introduced in the hearings a plan for pooling any revenues resulting from an advance in rates, and distributing them as gratuities in proportion to the needs of the various railways, and this plan the Interstate Commerce Commission adopted. There is a persistent rumor that the suggestion that the league (the National Industrial Traffic League) should inject the plan into the hearings was first made by a very influential member of the commission, and that, anticipating its adoption, representatives of the league introduced it to show by the outcome how much influence it and its lawyers have with the commission."

There is no truth in the rumor "that the suggestion that the league should inject the plan into the hearings was first made by a very influential member of the commission," nor is there any truth in the further statement that, anticipating adoption of the pooling plan by the commission, representatives of the league introduced the pooling plan into the hearings to show by the outcome how much influence it and its lawyers have with the commission. I brand as false the entire statement made in the last sentence of the above quotation and designated as a "persistent rumor."

The suggestion for consideration of a plan for pooling any increase that might be granted was made by myself after a study of the record of the Washington hearings and was based upon the fact that the testimony of the carriers disclosed that their case was founded upon an emergency situation in railroad credit which existed on some carriers but not on others. A 15 per cent increase, unpooled, would tax the shippers of this country more than $500,000,000, less than half of which sum would be required to raise the carriers' net earnings to an individual level of not less than 1½ times their "fixed charges", as defined by the New York law controlling investments by savings banks.

In view of the depressed condition of business and of the competitive situation affecting transportation, it seemed to me that the commission ought to consider whether it should give effect to Section 5 of the Interstate Commerce Act in so far as this section applies to pooling or division of earnings of the carriers. This conclusion of mine, as attorney for the league, I presented to the special committee handling the matter and they approved the suggestion. In accordance with this action of the committee, I cross-examined carrier witnesses and caused the introduction of certain facts into the record. Brief and oral argument followed in the ordinary course of procedure. Then followed the commission's decision.

LUTHER M. WALTER.

NEWS

Commerce Body Decries Federal Barge Operation

N. Y. State Chamber opposes further expenditures for Inland Waterways Corporation

The Chamber of Commerce of the State of New York at a recent meeting adopted unanimously a report and resolutions which had been submitted by its committee on internal trade and improvements opposing any further expenditure of public monies for the Inland Waterways Corporation. The printed report is headed by a notice which reveals that it "was mailed to all members of the Chamber five days before the meeting and copies were also placed in the hands of each member attending the meeting when opportunity was given for discussion. The vote thereon therefore can fairly be said to represent the opinion of the entire membership."

The resolutions adopted are as follows:

Resolved, That the Chamber of Commerce of the State of New York opposes any further expenditure of public monies for the Inland Waterways Corporation, whose activities have aroused such general criticism from many quarters and have obliged the President of the United States by executive order to restrain certain forms of competition in which the Corporation has engaged, e. g., in the matter of rates on cotton; and be it

Resolved, That, in the opinion of the Chamber, the provision by the Government of the navigable channels and locks and of their costs of maintenance is sufficient subsidization of this kind of transportation without a further subsidization by the employment of public monies in operating the Inland Waterways Corporation at a loss, to the detriment of citizens engaged in the same business; and that the Corporation should retire from the field and leave it to citizens to whom it properly belongs; and be it further

Resolved, That copies of these Resolutions be sent to the President and the members of Congress.

The accompanying report after a review of the financial history of the Inland Waterways Corporation and of the results of its 1930 operations in particular finds that "it is manifest that the barge line operations proper of the Inland Waterways Corporation were conducted at a loss last year and have over the entire period of the Corporation's existence failed to cover expenses. It is perhaps superfluous to point out that the Corporation has never earned anything to represent a return on the public monies invested therein."

The committee "deemed it further advisable to call the Chamber's attention to the fact that the United States Government in operating the Inland Waterways Corporation is using the people's money to compete with its own citizens whose money is invested in railroad properties. The suggestion that the country's transportation facilities are inadequate is not only absurd in the face of the present depression in traffic but has been manifestly untrue at any time since 1921—yet this has been the excuse for the Corporation's activities up to the present time. Furthermore, and of this the Chamber may not be aware, there are now in operation on the Mississippi River two privately owned companies engaged as common carriers by barge line, both of which are operating at a loss. If the object of the Inland Waterways Corporation really be as stated, namely to attract private capital to inland waterway transportation it would seem that competition with private capital as the Government-owned lines are now competing with it is hardly a good way to achieve that object."

Great Lakes Shippers' Board

The Great Lakes Shippers' Regional Advisory Board will hold its regular meeting at Detroit, Mich. on December 16. J. L. Eysmans, vice-president in charge of traffic of the Pennsylvania, will be the principal speaker.

Increased Tobacco Rates Suspended

The Interstate Commerce Commission has suspended from December 9 until July 9, 1932, the operation of tariff schedules which propose to cancel commodity rates on unmanufactured tobacco from, to and between points in Southern Classification territory and to apply higher class rates, or revised commodity rates in some instances, in lieu thereof.

R. B. A. Organizes to Fight Depression

At a well attended meeting in New York on December 9, to consider a financial emergency due to the depression, the general executive committee of the Railway Business Association unanimously voted that the association should be continued, underwrote immediate needs and authorized a special committee on organization and finance. This committee is to report to the board at 12:30, December 18, at the Railroad Club of New York. President Alba B. Johnson announced acceptance by the following appointees as executive members: J. Rogers Flannery, Pittsburgh, Pa., president of the Flannery Bolt Company; William B. Given, New York, president of the American Brake Shoe & Foundry Company; L. S. Oakes, Minneapolis, Minn., president of Winston Brothers; George A. Rentschler, Hamilton, Ohio, president of the Niles Tool Works; Dwight P. Robinson, Philadelphia, Pa., United Engineers & Constructors, and W. F. Walsh, New York, Standard Oil Company of New Jersey.

Regulation of Contract Motor Carrier Upheld

Enjoys a privilege, not a right—"grave consideration" accorded to law's preamble

Overemphasis of the common law status of the contract carrier has operated erroneously to obscure the fact that he enjoys this status not as a right but as a privilege, says the U. S. District Court for the Southern district of Texas in a recent decision upholding motor vehicle regulatory laws of that state. The decision, rendered in the case of Stephenson vs. Binford et al., held that a state may establish a correlated system for regulating motor transportation which includes the control and regulation of private contract carriers as well as common carriers.

"We think that the cases which have discussed regulatory statutes and the status of a private carrier under them," the court said, "have discussed them too much from the standpoint of that status as fixed by common law, unaffected by statute. . . . We think it perfectly plain that as he never had a right on the roads, but merely a privilege as to them, it is too much to say that when a state undertakes to impose upon him conditions different from those characterizing him at common law, his privilege flowers under the Fourteenth Amendment into a right which the state may not impair."

The real attack of the plaintiff, to quote from the opinion, was "pressed against those provisions of the act which based upon considerations of public interest in the establishment and maintenance of a dependable transportation system for the state, authorize the Commission to grant or refuse permits to contract carriers upon consideration not only of questions of congestion upon the highways, the fitness and capacity of the contract applicant to conduct the business which he offers to do, but of conditions along the route proposed as to already existing adequate service by common carriers.

"Especially is the attack pressed against the right accorded by the act to the Commission to grant or refuse the permit upon consideration of the whole transportation and traffic structure of the state, and upon a determination of whether the stability and integrity of that structure will be bettered or injured by the grant."

The court, after citing state regulatory laws which have been held invalid continued as follows:

We think it perfectly plain that the statute under construction here is wholly different not only from the statutes discussed in the Frost and Cahoon cases, but from any heretofore brought under review.

This statute approaches the matter of regulation from an entirely different angle; it asserts

the power of the state in an entirely different way. It presents with crystal clearness the point whether the state must choose between the alternatives of excluding private carriers altogether from its roads, or of permitting them to use the roads in the conduct of the kind of business which the state has declared must be conducted thereon.

Here is no case of compelling private carriers to become common carriers; no case of granting a right and thereafter arbitrarily or illegally conditioning that right. Here is a case of a clear, a simple, a complete declaration of policy that the public has an interest in the business of carriage for hire over the highways of the state, a prohibition of the right to engage in such business except under a franchise, and an affixing to the enjoyment of a franchise the condition that the holder must become an integral part of the transportation system of the state, and must submit to the regulations applicable to his franchise as to rates and practices.

The "declaration of policy" referred to above is contained in Section 33b of the Texas law and reads as follows:

The business of operating as a motor carrier of property for hire along the highways of the state is declared to be a business affected with the public interest. The rapid increase of motor carrier traffic, and the fact that under existing law many motor trucks are not effectively regulated, have increased the dangers and hazards on public highways and make it imperative that more stringent regulation should be employed to the end that the highways may be rendered safer for the use of the general public; that the wear of such highways may be reduced; that discrimination in rates charged may be eliminated; that congestion of traffic on the highways may be minimized; that the use of the highways for the transportation of property for hire may be restricted to the extent required by the necessity of the general public, and that the various transportation agencies of the state may be adjusted and correlated so that public highways may serve the best interest of the general public.

Commenting further upon this declaration, the court recognized that "against the challenge of its validity a state statute cannot stand upon legislative declaration alone . . . but those cases (cited) and many others clearly establish that in all the courts, and certainly in the courts of first instance, a legislative declaration of purpose and policy is entitled to gravest consideration, and unless clearly overthrown by facts of record, must prevail."

Burlington Obtains Important Injunction

A decision of far-reaching importance was rendered on December 5, by Judge Geiger, sitting in the United States district court for the Western district of Wisconsin, in which he restrained the Secretary of War from constructing a dam across the Mississippi river at Alma, Wis., to an elevation higher than that authorized by Congress. In the bill appropriating money for the improvement of the Upper Mississippi for purposes of navigation, the elevation of this dam, a slack-water dam, had been specified as 665.7. The plans of the War department contemplated an elevation of 670.

The Chicago, Burlington & Quincy, fearing that its line to Minneapolis, which follows the east bank of the river along the section of the stream over which the water was to be raised, would be seriously damaged by the construction to this latter elevation, applied for an order to enjoin the raising of the dam above elevation 665.7. Judge Geiger issued a temporary injunction in November and in his decision of December 5, he issued a permanent restraining order.

Although it has been customary for the War department to ignore the mandate of Congress in similar instances, since the elevations which are stipulated in appropriation bills are usually based on preliminary surveys which generally require corrections and adjustments, the court declared that this practice was illegal and, in this case, could not be permitted. The importance of the decision is that it establishes a clear-cut precedent upon which similar actions in the future can be based.

Senator Couzens Proposes Railroad Investigation

A resolution proposing an investigation of "all matters affecting the operations" of the railroads has been prepared by Senator Couzens, chairman of the Senate committee on interstate commerce, who has announced his intention of introducing it in the Senate "with a particular view to determining to what extent the federal government can aid during the present emergency in preserving continuous and efficient transportation service by railroad, in alleviating the financial difficulties in which many such carriers are involved, in relieving the distress of the unemployed railroad workers, and in preventing further unemployment among such workers.

It is proposed that this investigation be made by a joint congressional committee composed of the chairman, the ranking majority member, the ranking minority member and the next ranking member, of the Senate and House committees on interstate commerce. The resolution was announced by Senator Couzens just before the recommendations of the President and the Interstate Commerce Commission as to further transportation legislation were made public. The language of the preamble, however, indicates that it was perhaps inspired by the railway wage negotiations and rumors of a proposed loan fund for the railroads. After stating that approximately 500,000 "normally necessary" railway employees are now unemployed, that a large percentage of railway workers are earning less than the amount necessary for a decent livelihood, and that there is a movement to reduce wages, it was stated that "responsible representatives of the railroads have indicated that financial assistance of the federal government will be sought in order to maintain the operations of many railroads." It was also stated that an emergency exists requiring that a co-ordinated program be developed immediately and that there is no single agency of the government authorized to develop such a program or charged with full responsibility for determining the extent to which government aid can and should be extended.

Federal Budget Estimates for 1933

Appropriations amounting to $8,761,410 for the work of the Interstate Commerce Commission for the fiscal year ending June 30, 1933, are recommended by the Bureau of the Budget in the annual budget message of the President transmitted to Congress on December 7. This is a reduction of $651,063 as compared with the appropriations for 1932, including a reduction of $287,736 in department personnel, $57,161 in field personnel, $167,166 in travel expenses, and $139,000 in the rental of the commission's office building, which is to be transferred to another appropriation. For the Board of Mediation the budget recommends $169,685, a decrease of $18,320.

The total budget estimates for the federal government for 1933 are $365,000,000 less than those for the current fiscal year but no reductions are proposed in expenditures for highway and rivers and harbors improvements. For the Bureau of Public Roads the estimate is $109,000,000, which is less than that for this year only by $16,000,000 which is deducted from the item for co-operation with the states in the construction of roads in the federal-aid highway system, as representing one-fifth of the $80,000,000 which was temporarily advanced to the states for emergency construction with a view to relieving unemployment.

The estimate for the annual appropriation for the maintenance and improvement of existing river and harbor works is in the same amount as was appropriated for 1932, (except that last year there was an emergency appropriation of $22,500,000) namely, $60,000,000. It is stated that the government has given tentative assurances as to early dates of fulfillment which will require the full amount of the appropriation requested. There is also a provision for $9,897,600 for permanent appropriations for rivers and harbors.

For the Alaska Railroad the estimate is $500,000, a decrease of $500,000 in view of the reduction in operating expenses effected this year.

The estimate for the Postoffice Department includes a reduction of $9,000,000 for the year in railroad transportation and mail messenger service.

Canadian Roads in October

The Canadian Pacific reports gross earnings of $13,501,048 for October, this being a reduction of $3,772,132 from October of 1930. In the month expenses were cut from $10,658,974 to $8,848,623 a drop of $1,810,350, leaving net revenues for the month of $4,652,424, a reduction of $1,961,781 from October of last year, when net totaled $6,614,206.

Gross for the ten months was $119,415,656 against $152,254,502, or a reduction of $33,838,846. Expenses were reduced by $23,653,307 in the same period to $100,102,990, leaving the net revenues for the ten months $19,312,666, against $29,498,205, or a reduction of $10,185,539.

Net operating revenue of $1,841,748 for the month of October is shown by the monthly statement of the Canadian National. Operating expenses continue to show economies, the decrease for the month as against October, 1930, being $2,851,248.

Gross revenues in October, 1931, were $16,018,766, a decrease of $4,868,287 as compared with October 1930. Operating expenses were $14,177,017 as compared with $17,028,266 in the corresponding month of last year. Net revenue was $1,841,748, a decrease of $2,017,038 as compared with October, 1930.

Gross revenues for the period from January 1 to the end of October, were $148,571,581, a decrease of $41,301,640 from the gross for the same period of last year. Operating expenses were

(Continued on page 920)

Revenues and Expenses of Railways

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1931

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930.
Akron, Canton & Youngstown	Oct.	171	$151,103	$52	$162,475	$19,895	$15,407	$10,322	$47,290	$11,563	$104,437	64.3	$58,038	$45,852	$33,041	$68,499
	10 mos.	171	1,578,357	725	1,660,759	222,047	166,943	115,940	505,011	132,171	1,141,419	68.7	519,340	394,534	250,193	498,426
Alton	Oct.	1,028	1,169,525	222,075	1,543,627	211,728	246,305	73,535	651,588	52,581	1,245,417	80.68	298,210	189,447	63,111	90,559
	10 mos.	1,028	11,864,916	2,695,531	16,223,871	1,989,860	3,090,925	708,761	6,554,504	582,756	13,038,821	80.37	3,185,050	2,152,475	657,228	522,017
Alton & Southern	Oct.	30	.....	.....	90,707	7,231	6,403	4,995	32,628	5,298	56,555	62.34	34,152	24,178	19,225	29,468
	10 mos.	30	.....	.....	919,120	87,934	72,460	50,878	337,256	50,844	599,372	65.21	319,748	223,420	201,534	248,921
Atchison, Topeka & Santa Fe	Oct.	9,669	10,510,033	1,312,545	12,835,268	1,357,069	2,770,552	403,335	3,746,275	409,373	8,662,453	67.5	4,172,815	2,809,497	2,943,484	5,533,648
	10 mos.	9,661	99,923,224	18,066,959	129,067,597	17,059,432	28,049,599	3,926,430	40,117,148	4,253,908	93,180,527	72.2	35,887,070	23,594,772	23,918,380	31,949,427
Gulf, Colorado & Santa Fe	Oct.	1,976	1,605,729	82,248	1,779,303	164,783	296,934	56,124	538,034	69,676	1,122,349	63.1	656,954	558,868	485,336	925,522
	10 mos.	1,976	14,190,798	866,184	16,021,737	2,412,115	3,411,031	565,324	5,424,150	799,519	12,568,506	78.4	3,453,237	2,476,164	1,454,940	3,391,820
Panhandle & Santa Fe	Oct.	1,876	957,995	68,542	1,088,573	98,036	205,995	20,460	300,378	35,877	655,127	60.2	433,446	380,779	292,137	453,811
	10 mos.	1,815	8,927,640	637,824	10,223,996	1,499,652	2,115,215	200,575	3,000,763	368,933	7,147,154	69.9	3,076,842	2,529,340	1,488,409	1,949,982
Atlanta & West Point	Oct.	93	94,558	25,741	142,596	20,374	31,620	9,967	64,149	10,914	140,664	98.6	1,932	—9,372	—20,041	8,232
	10 mos.	93	1,078,058	284,568	1,585,157	219,305	312,389	102,866	653,887	117,353	1,443,231	91.0	141,926	26,155	—74,199	37,343
Western of Alabama	Oct.	133	98,390	27,859	143,098	27,214	38,460	10,666	59,343	11,446	150,369	105.1	—7,271	—20,076	—15,762	38,056
	10 mos.	133	1,137,922	303,419	1,616,503	243,190	395,407	109,822	614,515	117,971	1,514,199	93.7	102,304	—10,443	47,303	282,435
Atlanta, Birmingham & Coast	Oct.	639	204,452	7,630	239,484	64,316	63,991	24,417	122,543	18,004	302,633	126.4	—63,149	—79,514	—88,976	—34,306
	10 mos.	639	2,449,311	104,406	2,857,549	694,417	700,413	261,408	1,358,135	192,629	3,300,866	115.5	—443,317	—603,887	—776,248	—482,885
Atlantic Coast Line	Oct.	5,144	2,493,172	284,632	3,097,286	638,289	866,944	142,009	1,456,051	160,971	3,278,816	105.9	—181,530	—482,167	—475,478	216,760
	10 mos.	5,159	35,542,426	6,688,171	46,603,135	6,910,366	9,304,621	1,467,717	17,161,491	1,703,927	36,956,753	79.3	9,646,382	5,291,331	4,091,748	5,931,155
Charleston & Western Carolina	Oct.	342	187,769	2,566	197,159	35,196	27,931	6,106	72,900	6,196	148,249	75.2	48,910	31,386	31,520	66,662
	10 mos.	342	2,035,506	45,136	2,152,750	352,457	295,931	71,290	782,419	64,141	1,563,897	72.6	588,853	392,272	356,871	260,190
Baltimore & Ohio	Oct.	5,653	11,200,806	1,083,899	13,314,499	1,013,843	2,065,631	435,302	4,815,838	639,953	9,108,417	68.4	4,206,082	3,452,231	3,122,994	4,480,707
	10 mos.	5,653	114,114,843	12,720,399	136,752,704	11,903,771	27,666,419	4,999,609	50,450,205	6,547,803	103,078,020	75.4	33,674,684	26,149,796	23,339,713	34,801,539
Baltimore & Ohio Chic. Term	Oct.	85	.....	.....	345,465	36,031	58,118	2,652	190,147	18,940	311,736	90.2	33,729	—19,350	67,508	159,565
	10 mos.	85	.....	.....	2,829,741	335,096	385,976	22,993	1,492,313	182,654	2,473,955	87.4	355,786	—132,722	709,135	1,063,174
Staten Island Rapid Transit	Oct.	23	62,778	107,847	176,876	6,918	16,332	2,057	92,348	19,932	137,587	77.8	39,289	22,289	10,222	29,723
	10 mos.	23	566,985	1,179,744	1,835,759	121,509	141,816	20,406	914,809	176,368	1,374,908	74.9	460,851	287,451	152,683	281,347
Bangor & Aroostook	Oct.	619	619,372	16,336	661,426	121,839	96,458	7,416	143,311	27,351	398,411	60.2	263,015	200,832	208,734	303,099
	10 mos.	619	5,193,329	340,885	5,795,119	1,189,673	1,133,063	58,534	1,460,795	279,867	4,143,230	71.5	1,651,889	1,153,092	1,172,498	2,099,465
Belt Ry. Co. of Chicago	Oct.	53	.....	.....	469,814	44,881	52,924	3,674	207,047	9,003	317,529	67.6	152,285	76,860	105,610	146,264
	10 mos.	53	.....	.....	4,527,835	300,774	462,811	35,388	2,147,794	98,218	3,044,985	67.3	1,482,850	777,925	1,101,273	1,516,562
Bessemer & Lake Erie	Oct.	226	742,419	1,723	754,212	71,175	172,040	13,092	192,426	35,897	486,038	64.4	268,174	223,335	226,493	645,229
	10 mos.	227	7,773,251	24,298	7,914,514	1,045,744	2,036,667	133,210	2,077,658	370,899	5,677,151	71.7	2,237,363	1,793,298	1,735,047	4,682,236
Boston & Maine	Oct.	2,089	3,294,921	784,080	4,821,587	725,863	665,465	93,348	1,817,415	208,687	3,524,813	73.1	1,296,774	1,025,876	827,093	1,345,077
	10 mos.	2,089	32,469,644	9,898,258	49,485,629	7,461,756	6,930,810	852,513	18,395,351	2,150,265	35,988,972	72.7	13,496,657	10,809,556	8,713,090	10,393,866
Brooklyn Eastern Dist. Term	Oct.	11	97,147	.....	99,279	8,492	13,174	205	30,832	6,166	58,869	59.3	40,410	34,006	34,006	43,049
	10 mos.	11	1,023,204	.....	1,037,948	98,475	121,314	4,555	321,282	58,490	604,116	58.2	433,832	366,937	366,937	383,131
Buffalo & Susquehanna	Oct.	253	120,364	279	138,795	20,941	28,961	2,718	37,708	6,452	96,780	69.7	42,015	37,787	40,779	48,099
	10 mos.	253	1,155,609	3,880	1,311,847	241,158	310,926	21,299	381,172	69,688	1,024,243	78.1	287,604	264,476	322,544	369,588
Buffalo, Rochester & Pittsburgh	Oct.	601	1,096,726	24,286	1,161,886	112,513	228,303	29,234	426,985	40,579	839,351	72.2	322,535	272,529	197,960	267,747
	10 mos.	601	10,108,298	335,887	10,834,393	1,257,610	2,738,271	283,588	4,275,904	394,911	8,967,728	82.8	1,866,665	1,605,344	1,354,835	1,842,154
Burlington-Rock Island	Oct.	310	177,805	1,690	185,340	10,968	14,073	5,469	55,391	10,095	95,697	51.6	89,643	83,562	62,601	27,148
	10 mos.	338	1,127,570	25,009	1,214,969	221,318	151,747	63,223	513,169	103,388	1,047,678	86.2	167,291	97,025	—112,300	—760,765
Canadian Pacific Lines in Maine	Oct.	233	110,444	15,072	137,057	82,351	13,996	6,920	66,190	3,166	172,623	125.8	—35,566	—43,566	—56,627	—7,518
	10 mos.	233	1,416,672	213,249	1,753,663	580,798	384,037	75,762	809,038	40,196	1,889,831	107.7	—136,168	—252,168	—435,748	—268,653
Canadian Pacific Lines in Vermont	Oct.	85	54,835	13,752	89,557	12,348	11,665	2,100	74,873	2,123	103,109	115.1	—13,552	—20,252	—45,202	—50,348
	10 mos.	85	710,121	223,012	1,156,779	179,384	246,164	21,652	766,073	26,107	1,239,279	107.1	—82,500	—125,380	—388,090	—288,310
Central of Georgia	Oct.	1,944	1,041,932	103,096	1,339,889	142,821	219,934	60,875	567,757	80,244	1,074,592	80.2	265,297	156,057	143,256	493,409
	10 mos.	1,944	11,582,435	1,610,293	14,848,666	1,497,729	2,603,649	648,127	6,271,165	798,766	11,907,579	80.2	2,941,087	1,787,125	1,659,463	3,157,519
Central New Jersey	Oct.	692	2,745,593	518,585	3,509,790	259,968	669,376	53,864	1,290,625	103,489	2,396,593	68.3	1,113,197	512,227	436,710	939,660
	10 mos.	692	25,670,055	5,860,251	33,731,753	3,098,677	6,699,024	589,864	13,663,613	1,115,261	25,379,842	75.2	8,351,911	4,391,531	3,514,862	6,400,983
Central Vermont	Oct.	456	413,422	48,345	514,215	72,683	101,393	18,008	222,113	22,494	437,000	85.0	77,215	63,287	67,407	130,841
	10 mos.	456	4,367,903	716,891	5,644,398	1,086,252	1,018,153	177,582	2,412,340	235,582	4,947,735	87.7	696,663	552,612	610,612	1,122,691
Chesapeake & Ohio	Oct.	3,115	10,323,021	295,305	11,076,153	1,377,326	1,929,067	186,694	2,650,397	304,779	6,459,420	58.3	4,616,733	3,872,474	3,869,274	4,456,712
	10 mos.	3,119	94,565,939	3,562,875	102,962,732	13,324,062	19,155,250	1,748,833	25,602,682	3,342,683	63,311,294	61.5	39,651,438	31,360,386	31,296,704	34,471,113
Chicago & Eastern Illinois	Oct.	938	1,005,390	112,833	1,242,047	158,253	249,415	73,887	564,333	57,168	1,110,412	89.4	131,635	16,246	—130,359	11,226
	10 mos.	938	10,168,895	1,581,261	12,954,491	1,675,302	2,710,551	707,034	5,807,475	652,581	11,670,946	90.1	1,283,545	120,063	—1,340,655	—540,149
Chicago & Illinois Midland	Oct.	131	249,960	1,942	259,974	15,305	2,390	19,956	67,567	17,485	117,624	45.2	142,350	133,778	130,770	72,903
	10 mos.	131	2,178,032	26,084	2,281,669	251,880	465,351	207,584	682,205	192,562	1,787,028	78.3	494,641	418,726	369,198	428,814

Revenues and Expenses of Railways

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1931—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930.
Chicago & North Western	Oct.	8,458	$6,599,901	$962,212	$8,497,653	$1,350,000	$1,662,775	$175,031	$3,406,387	$347,954	$6,982,262	82.2	$1,515,391	$903,420	$524,517	$2,666,474
	10 mos.	8,458	66,279,524	12,735,478	88,782,970	13,424,444	17,528,082	2,005,628	35,371,745	3,685,332	72,459,391	81.6	16,323,579	9,293,355	6,729,673	15,994,251
Chicago, Burlington & Quincy	Oct.	9,307	8,014,178	782,848	9,745,833	1,210,898	1,349,123	216,953	3,246,147	360,580	6,447,495	66.2	3,298,338	2,400,434	2,131,040	3,477,482
	10 mos.	9,313	75,899,243	9,706,607	95,503,934	12,196,470	14,866,536	2,467,747	32,115,368	3,544,946	65,894,442	69.0	29,609,492	21,018,583	18,470,691	24,833,583
Chicago Great Western	Oct.	1,495	1,627,116	85,984	1,823,753	291,561	194,743	78,862	650,714	56,751	1,275,531	69.9	548,222	472,322	266,928	456,024
	10 mos.	1,495	14,756,184	1,095,618	17,033,541	2,344,052	1,946,518	817,171	6,280,036	590,443	12,021,938	70.6	5,011,603	4,191,560	2,224,265	2,433,636
Chicago, Indianapolis & Louisville	Oct.	647	708,581	73,587	882,095	79,876	178,256	34,336	370,258	32,130	704,231	79.8	177,864	129,698	21,873	96,665
	10 mos.	647	7,626,785	918,204	9,521,917	948,564	1,942,382	347,933	3,859,407	334,463	7,521,285	79.0	2,000,632	1,374,874	250,938	1,043,710
Chicago, Mil., St. Paul & Pacific	Oct.	11,257	8,241,162	589,419	9,717,701	1,496,640	1,655,979	254,496	3,573,755	323,510	7,333,399	75.5	2,384,302	1,684,872	1,179,977	2,165,506
	10 mos.	11,313	78,695,231	7,712,499	95,798,768	15,480,981	18,497,492	2,816,614	36,627,094	3,329,921	76,737,889	80.1	19,060,879	11,520,857	7,355,502	14,340,804
Chicago River & Indiana	Oct.	20	.....	.....	487,977	32,000	20,000	1,652	163,713	15,875	233,240	47.8	254,737	197,794	276,745	302,053
	10 mos.	20	.....	.....	4,604,685	378,000	345,000	18,362	1,560,733	176,631	2,478,726	53.8	2,125,959	1,650,908	2,389,523	2,654,814
Chicago, Rock Island & Pacific	Oct.	7,620	6,109,209	726,349	7,503,898	755,398	1,456,515	208,107	2,857,225	332,301	5,659,476	75.4	1,844,422	1,367,759	1,056,572	2,130,631
	10 mos.	7,596	64,857,654	8,739,916	81,151,812	9,080,377	14,530,027	2,339,249	30,339,985	3,384,160	60,504,349	74.6	20,647,463	15,348,805	11,325,513	16,017,958
Chicago, Rock Island & Gulf	Oct.	721	464,114	32,726	490,088	48,032	45,918	20,148	131,875	21,904	270,909	55.3	219,179	194,283	187,895	136,773
	10 mos.	674	4,629,738	403,961	5,177,239	616,990	404,261	205,446	1,569,340	222,220	3,049,523	58.9	2,127,716	1,878,139	1,580,212	1,366,045
Chic., St. Paul, Minn. & Omaha	Oct.	1,736	1,252,473	170,395	1,556,350	256,000	253,445	38,585	710,600	82,039	1,348,357	86.6	207,993	111,440	20,770	98,585
	10 mos.	1,736	12,485,910	2,073,993	15,982,276	2,452,873	2,982,981	392,198	7,213,062	830,770	13,973,276	87.4	2,009,000	1,041,454	273,736	1,962,205
Clinchfield R. R.	Oct.	309	454,881	3,022	466,439	43,592	112,447	17,631	93,616	16,451	283,737	60.8	182,702	127,700	146,660	185,221
	10 mos.	309	4,445,980	59,577	4,589,595	519,736	1,134,358	187,412	998,090	177,777	3,016,688	65.7	1,572,907	947,892	1,249,379	1,610,300
Colorado & Southern	Oct.	1,038	749,113	38,359	853,533	96,004	144,369	13,629	262,409	39,854	557,607	65.3	295,926	228,085	192,765	232,445
	10 mos.	1,038	5,508,567	514,470	6,658,236	989,247	1,331,440	157,451	2,408,897	393,758	5,300,241	79.6	1,357,995	681,010	445,180	964,458
Ft. Worth & Denver City	Oct.	693	576,744	56,013	715,040	69,513	85,190	18,909	220,188	40,488	437,110	61.1	277,930	242,597	192,989	224,402
	10 mos.	695	5,431,185	694,226	6,766,396	686,882	983,610	196,189	2,011,785	378,528	4,283,246	63.3	2,483,150	2,140,753	1,857,913	1,801,368
Wichita Valley	Oct.	270	79,406	927	84,537	15,412	4,954	32	23,969	2,087	46,411	54.9	38,126	32,529	22,799	663
	10 mos.	270	538,004	11,894	583,485	139,498	40,706	470	236,387	18,183	434,465	74.5	149,020	82,644	—22,123	—158,498
Columbus & Greenville	Oct.	167	99,198	4,377	109,028	20,700	27,292	4,236	37,743	11,146	101,098	92.7	7,930	4,917	4,784	6,687
	10 mos.	167	787,336	60,194	898,222	140,411	150,784	38,989	357,716	112,329	800,196	89.1	98,026	64,240	74,119	92,214
Conemaugh & Black Lick	Oct.	20	35,546	.....	53,836	10,197	9,938	404	20,025	3,285	43,849	81.4	9,987	10,987	13,309	10,598
	10 mos.	20	342,658	.....	628,680	85,807	157,213	4,908	376,166	34,083	658,177	104.7	—29,497	—36,597	—5,613	182,576
Delaware & Hudson	Oct.	858	2,489,525	139,261	2,821,302	288,706	592,734	63,524	959,418	139,744	2,054,949	72.8	766,353	733,057	757,159	906,899
	10 mos.	877	22,593,367	1,839,989	26,291,298	3,709,985	6,354,051	569,574	9,801,256	1,499,484	22,024,371	83.8	4,266,927	3,529,031	3,584,591	5,406,415
Delaware, Lackawanna & Western	Oct.	998	3,841,132	684,282	5,187,352	449,951	918,342	133,876	2,098,338	165,656	3,802,259	73.3	1,385,093	884,803	895,964	1,379,973
	10 mos.	998	35,958,925	7,371,024	50,119,862	5,025,854	9,474,605	1,357,799	21,118,595	1,732,330	39,106,714	78.0	11,013,148	6,408,329	6,346,870	9,627,750
Denver & Rio Grande Western	Oct.	2,557	2,247,183	129,234	2,503,794	286,088	306,296	51,866	741,116	92,806	1,488,919	59.5	1,014,875	864,765	803,822	1,162,747
	10 mos.	2,550	16,875,603	1,549,630	19,793,440	2,394,126	3,794,956	534,251	6,126,479	861,778	13,866,441	70.1	5,926,999	4,320,525	4,337,618	5,854,358
Denver & Salt Lake	Oct.	232	252,931	5,124	270,662	27,580	22,014	2,166	39,059	12,717	103,536	38.3	167,126	151,126	155,413	255,691
	10 mos.	232	1,627,323	81,615	1,852,640	311,359	324,182	19,548	323,251	110,063	1,088,403	58.7	764,237	604,220	656,135	807,714
Detroit & Mackinac	Oct.	242	77,470	3,169	91,221	12,095	11,129	3,839	28,655	4,828	60,518	66.3	30,703	23,477	23,837	30,478
	10 mos.	242	737,321	50,378	877,997	148,466	144,915	16,427	275,309	43,094	625,397	71.2	252,600	196,380	189,536	39,491
Detroit & Toledo Shore Line	Oct.	50	211,328	.....	213,783	23,761	27,117	8,024	60,716	7,867	125,479	58.7	88,304	66,850	24,949	53,224
	10 mos.	50	2,406,125	.....	2,441,397	275,289	268,399	77,031	690,651	82,490	1,384,030	56.7	1,057,367	831,924	362,934	592,926
Detroit Terminal	Oct.	19	.....	.....	54,407	8,825	9,059	.....	32,175	3,805	53,864	99.0	543	—10,010	—16,322	4,995
	10 mos.	19	.....	.....	761,690	81,927	88,198	36	415,396	39,534	625,091	82.1	136,599	15,056	—57,895	104,281
Detroit, Toledo & Ironton	Oct.	487	314,855	778	329,143	4[illegible]2	62,049	13,635	132,824	22,955	275,037	83.6	54,106	8,436	3,176	117,749
	10 mos.	493	4,876,298	10,791	5,042,584	59o,841	782,295	127,353	1,704,543	284,490	3,479,812	69.0	1,562,772	1,084,951	928,842	2,082,662
Duluth, Missabe & Northern	Oct.	563	1,013,446	2,288	1,158,893	136,610	194,990	3,393	263,580	37,594	636,158	54.9	522,735	519,422	519,991	1,048,553
	10 mos.	564	9,518,100	35,189	10,887,724	2,045,056	2,694,648	38,311	2,618,314	393,288	7,789,225	71.5	3,098,499	2,390,628	2,385,556	8,342,646
Duluth, Winnipeg & Pacific	Oct.	178	62,455	6,587	80,064	20,784	24,737	3,808	49,406	6,393	105,398	131.6	—25,334	—29,337	—26,030	—6,405
	10 mos.	178	828,567	73,946	978,175	276,560	324,387	41,428	524,614	68,812	1,249,638	127.8	—271,463	—320,423	—299,565	—6,006
Elgin, Joliet & Eastern	Oct.	447	781,012	2	860,818	128,066	165,802	17,201	406,069	47,148	764,448	88.8	96,370	—16,471	—49,929	118,362
	10 mos.	447	10,652,089	44	11,707,234	1,662,221	2,433,612	157,240	5,000,287	526,075	9,777,954	83.5	1,929,280	752,136	123,826	2,799,949
Erie Railroad	Oct.	2,046	6,087,134	562,839	7,251,250	858,425	1,354,340	188,446	2,691,629	295,723	5,408,964	74.6	1,842,286	1,427,902	1,289,682	1,652,113
	10 mos.	2,046	55,801,619	6,546,533	68,307,673	8,740,331	14,300,463	1,664,776	26,316,060	2,848,416	54,178,270	79.3	14,129,403	10,154,896	9,124,659	11,716,045
Chicago & Erie	Oct.	269	884,283	26,014	990,684	115,452	122,983	30,751	280,274	42,427	591,071	59.7	399,613	343,584	84,000	210,747
	10 mos.	269	8,227,553	369,809	9,269,697	1,175,404	1,183,173	291,812	2,774,922	415,051	5,834,031	62.9	3,435,666	2,875,165	410,053	1,236,109

Revenues and Expenses of Railways

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1931—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930.
New Jersey & New York	Oct.	45	$24,299	$80,562	$108,407	$11,813	$26,723	$1,668	$55,940	$4,150	$100,294	92.5	$8,113	$3,738	—$17,726	—$22,489
	10 mos.	45	238,584	839,951	1,114,736	117,392	232,915	14,030	565,271	36,281	965,878	86.6	148,858	104,958	—157,848	—206,590
N. Y., Susquehanna & Western	Oct.	131	307,649	32,706	367,925	52,300	53,386	5,334	140,857	12,605	264,481	71.9	103,444	70,744	55,373	96,831
	10 mos.	131	2,999,511	343,570	3,628,566	443,560	504,398	48,008	1,461,973	127,114	2,584,892	71.2	1,043,674	715,825	474,145	556,891
Florida East Coast	Oct.	864	323,113	73,908	458,515	112,716	126,541	24,890	168,155	44,183	482,560	105.2	—24,045	—99,058	—133,119	—145,884
	10 mos.	864	4,659,725	2,221,999	7,941,685	1,185,433	1,438,297	277,606	2,384,513	457,704	5,875,293	74.0	2,066,392	999,535	427,876	750,057
Fort Smith & Western	Oct.	249	82,062	2,055	88,742	16,742	15,918	4,701	27,139	4,998	69,551	78.4	19,191	16,990	8,471	39,070
	10 mos.	249	587,355	29,356	668,783	140,387	141,975	47,618	278,416	53,737	657,457	98.3	11,326	—23,344	—111,582	42,833
Galveston Wharf	Oct.	13	.....	.....	207,828	43,315	6,093	3,562	28,622	5,835	102,731	49.4	105,097	82,097	85,001	65,205
	10 mos.	13	.....	.....	1,555,493	371,801	50,973	40,235	286,171	79,512	980,249	63.0	575,244	345,009	349,792	313,958
Georgia R. R.	Oct.	328	290,194	19,349	339,514	30,941	65,007	19,958	143,075	21,304	280,735	82.7	58,779	51,098	68,767	98,929
	10 mos.	328	2,947,050	282,816	3,505,555	358,312	660,477	208,782	1,555,991	228,343	3,016,327	86.0	489,228	411,280	528,062	632,734
Georgia & Florida	Oct	463	76,101	2,054	83,067	18,897	17,841	8,890	39,073	7,085	91,837	110.6	—8,770	—16,270	—13,576	10,304
	10 mos.	463	1,102,185	32,199	1,194,633	284,070	203,433	102,019	476,313	75,930	1,143,182	95.7	51,451	—23,551	—52,752	83,738
Grand Trunk Western	Oct.	1,021	1,170,360	96,466	1,393,622	253,217	353,436	55,938	739,599	103,301	1,510,937	108.4	—117,315	—211,300	—292,175	1,701
	10 mos.	1,020	14,801,906	1,143,656	17,235,703	2,778,560	3,645,826	607,431	7,811,541	1,033,454	15,939,381	92.5	1,296,322	138,427	—1,374,395	484,125
Canadian Nat'l Lines in New Eng.	Oct.	172	45,292	6,500	66,702	36,254	14,575	4,393	61,655	9,729	128,206	192.2	—61,504	—74,814	—124,715	—58,393
	10 mos.	172	938,685	141,941	1,233,503	292,364	306,719	49,541	779,226	90,386	1,543,041	125.1	—309,538	—452,073	—926,744	—867,607
Great Northern	Oct.	8,346	7,360,319	381,363	8,351,178	639,768	1,063,370	185,623	2,356,227	219,366	4,518,909	54.1	3,832,269	3,268,711	2,848,717	5,188,282
	10 mos.	8,361	54,910,700	5,195,925	66,619,520	8,512,885	12,552,599	2,161,102	22,008,772	2,266,841	47,908,371	71.9	18,711,149	12,179,858	10,474,494	19,101,461
Green Bay & Western	Oct.	234	126,668	1,467	133,583	24,474	16,549	7,160	52,245	2,814	103,141	77.2	30,442	23,442	19,985	27,786
	10 mos.	234	1,153,643	16,903	1,211,310	218,910	204,615	58,307	487,964	28,888	998,227	82.4	213,083	141,954	120,230	229,554
Gulf & Ship Island	Oct.	307	102,599	9,810	126,433	30,361	18,149	4,403	70,516	6,150	130,352	103.1	—3,919	—27,925	—39,041	11,580
	10 mos.	307	1,053,553	166,381	1,429,941	351,504	240,679	43,988	733,855	65,653	1,446,774	101.2	—16,833	—299,070	—425,458	—42,143
Gulf, Mobile & Northern	Oct.	733	332,884	9,539	359,730	42,337	59,824	23,423	110,530	18,538	254,652	70.79	105,078	77,929	63,045	103,274
	10 mos.	733	3,201,448	115,348	3,492,331	520,733	632,150	244,825	1,283,512	205,804	2,887,849	82.69	604,482	333,085	104,850	537,071
Illinois Central	Oct.	5,018	6,926,819	854,981	8,383,866	970,251	1,634,277	227,963	3,157,568	356,237	6,393,472	76.3	1,990,394	1,563,495	1,497,080	2,903,930
	10 mos.	5,018	67,107,800	10,519,784	85,006,948	10,374,790	18,810,590	2,370,656	33,627,632	3,611,746	69,411,332	81.7	15,595,616	10,046,208	8,946,944	16,906,317
Yazoo & Mississippi Valley	Oct.	1,681	1,653,672	96,686	1,843,631	229,525	243,328	39,526	635,713	67,469	1,213,895	65.8	629,736	502,697	370,664	591,779
	10 mos.	1,682	12,512,974	1,247,838	14,680,951	2,413,628	2,587,450	398,166	6,160,112	683,495	12,266,192	83.6	2,414,759	860,930	—384,766	2,173,354
Illinois Central System	Oct.	6,700	8,580,491	951,667	10,227,497	1,199,776	1,877,605	267,489	3,793,281	423,706	7,607,367	74.4	2,620,130	2,066,192	1,867,744	3,495,709
	10 mos.	6,701	79,620,774	11,767,622	99,687,899	12,788,418	21,398,040	2,768,822	39,787,744	4,295,241	81,677,524	81.9	18,010,375	10,907,138	8,562,178	19,083,115
Illinois Terminal	Oct.	543	393,227	76,785	493,838	74,205	60,691	21,472	181,382	34,306	371,641	75.26	122,197	94,231	65,555	148,701
	10 mos.	554	4,379,492	827,897	5,464,690	647,376	677,534	196,365	1,781,352	352,824	3,641,388	66.63	1,823,302	1,512,848	1,222,195	1,242,571
Kansas City Southern	Oct.	784	853,264	31,827	1,004,469	91,661	185,281	49,983	298,892	64,289	692,555	68.9	311,914	216,193	181,529	310,192
	10 mos.	784	8,979,400	433,109	10,625,313	970,518	1,748,576	512,451	3,235,992	664,947	7,135,692	67.2	3,489,621	2,523,176	2,147,259	3,026,702
Texarkana & Ft. Smith	Oct.	99	116,367	2,136	131,307	17,588	6,225	6,822	36,890	8,249	79,526	60.6	51,781	43,147	13,301	51,100
	10 mos.	99	1,391,486	28,374	1,595,444	166,249	112,070	70,138	437,519	96,793	904,481	56.7	690,963	604,303	359,670	438,736
Kansas, Oklahoma & Gulf	Oct.	326	224,850	670	229,074	19,721	26,718	13,018	51,165	9,747	120,086	52.4	108,988	86,389	67,901	90,551
	10 mos.	326	2,168,624	9,972	2,220,531	256,513	246,102	135,057	523,745	110,575	1,266,037	57.0	954,494	763,272	568,801	747,118
Lake Superior & Ishpeming	Oct.	160	115,747	97	132,811	22,904	18,969	621	29,171	7,491	79,156	59.6	53,655	36,566	35,138	74,940
	10 mos.	160	997,847	3,959	1,152,525	234,021	242,731	5,916	308,949	78,599	870,205	75.5	282,320	103,642	87,649	586,072
Lake Terminal	Oct.	12	.....	.....	65,791	6,579	4,709	.....	26,404	2,429	40,121	61.0	25,670	19,451	21,946	2,162
	10 mos.	12	.....	.....	572,862	71,770	76,615	.....	285,480	22,452	456,317	79.7	116,545	70,683	71,764	54,235
Lehigh & Hudson River	Oct.	96	178,709	498	188,938	25,993	24,197	3,884	60,196	9,200	123,470	65.3	65,468	50,016	32,291	29,477
	10 mos.	96	1,613,743	7,375	1,708,556	201,541	266,770	37,243	598,076	94,136	1,197,766	70.1	510,790	370,203	202,834	226,895
Lehigh & New England	Oct.	216	401,597	517	407,487	38,815	71,211	11,746	128,563	17,113	267,427	65.6	140,060	121,353	121,263	166,660
	10 mos.	216	3,469,991	7,548	3,513,280	473,761	774,322	57,346	1,234,015	204,508	2,743,843	78.1	769,437	649,065	729,246	868,514
Lehigh Valley	Oct.	1,361	4,010,992	284,022	4,643,965	270,182	847,279	118,809	1,791,676	125,114	3,174,479	68.4	1,469,486	1,274,643	1,170,785	1,206,123
	10 mos.	1,361	35,962,722	3,577,226	43,049,511	4,063,789	9,648,985	1,300,024	18,136,721	1,317,416	34,695,398	80.6	8,354,113	5,519,812	4,510,694	7,092,815
Louisiana & Arkansas	Oct.	608	529,055	10,723	568,824	57,607	74,310	22,102	127,928	21,355	303,658	53.4	265,166	207,569	184,476	157,644
	10 mos.	608	4,565,648	131,553	4,968,629	6,572,264	661,765	208,460	1,293,666	228,935	3,053,382	61.5	1,915,247	1,413,431	1,225,367	1,085,002
Louisiana, Arkansas & Texas	Oct.	202	61,521	654	65,116	20,883	8,087	6,586	20,712	4,576	60,827	93.4	4,289	1,694	—5,392	12,610
	10 mos.	202	566,103	10,408	604,036	178,251	86,625	36,164	239,629	46,040	586,532	97.1	17,504	—16,573	—82,653	—172,995
Louisville & Nashville	Oct.	5,264	6,111,343	560,982	7,167,244	1,169,905	1,544,158	208,520	2,607,793	347,359	5,912,219	82.5	1,255,025	832,716	952,749	1,794,360
	10 mos.	5,266	62,475,331	6,896,647	74,566,920	11,279,335	16,366,181	2,203,094	27,951,878	3,741,538	61,919,543	83.0	12,647,375	7,945,073	8,197,034	11,224,005

Revenues and Expenses of Railways

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1931—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930.
Maine Central	Oct.	1,121	$993,687	$125,623	$1,247,501	$156,509	$189,085	$29,302	$483,657	$43,443	$901,779	72.3	$345,722	$255,662	$219,404	$283,032
	10 mos.	1,121	9,799,542	1,798,914	12,878,092	2,000,035	2,092,062	205,709	5,046,525	453,574	9,820,107	76.3	3,057,985	2,205,727	1,752,162	2,565,662
Midland Valley	Oct.	363	203,882	1,244	211,455	30,026	23,021	3,621	49,423	8,142	112,797	53.3	98,658	86,977	72,066	114,821
	10 mos.	363	1,705,687	24,083	1,791,409	295,737	195,104	48,216	473,640	99,547	1,106,502	61.8	684,907	560,298	443,333	796,451
Minneapolis & St. Louis	Oct.	1,627	766,008	24,683	846,490	135,896	153,720	38,370	405,417	44,772	778,682	92.0	67,808	29,716	—1,572	149,857
	10 mos.	1,627	7,984,437	322,262	8,872,439	1,230,799	1,744,923	369,492	4,115,342	479,331	7,937,181	89.5	935,258	439,560	135,974	574,764
Minneapolis, St. Paul & S. S. Marie	Oct.	4,346	2,000,102	131,514	2,335,881	341,307	429,315	72,351	996,933	110,142	1,957,591	83.8	378,290	158,742	6,113	779,778
	10 mos.	4,370	20,503,818	1,933,094	24,699,731	3,509,983	4,803,895	758,718	10,202,839	1,199,157	20,605,730	83.4	4,094,001	1,971,879	571,150	3,969,099
Duluth, South Shore & Atlantic	Oct.	560	189,578	16,336	231,558	37,306	40,852	7,041	99,275	9,440	195,333	84.4	36,225	7,217	2,566	—3,385
	10 mos.	560	1,910,556	218,985	2,381,246	481,939	438,447	76,700	1,069,351	97,129	2,177,389	91.4	203,857	—93,185	—147,151	38,635
Spokane International	Oct.	163	55,252	2,362	62,109	16,811	5,456	3,116	25,547	4,911	56,244	90.6	5,865	460	—2,738	19,068
	10 mos.	163	580,316	34,489	663,687	159,868	63,336	32,854	250,372	55,075	567,584	85.5	96,103	45,207	5,699	75,308
Mississippi Central	Oct.	150	93,420	1,646	98,031	11,466	12,428	8,353	23,589	6,154	61,986	63.2	36,045	27,749	22,654	—35,361
	10 mos.	150	821,273	23,040	870,972	133,015	121,285	86,126	251,450	63,988	655,832	75.3	215,140	155,227	112,405	114,019
Missouri & North Arkansas	Oct.	364	90,191	1,545	97,652	30,132	15,513	9,714	37,470	8,925	101,754	104.2	—4,102	—6,554	—16,935	2,578
	10 mos.	364	908,185	22,262	991,535	243,583	142,796	93,984	395,252	80,524	955,049	96.3	36,486	11,165	—91,647	43,290
Missouri-Illinois	Oct.	202	107,184	598	110,888	24,293	18,289	3,385	37,833	5,990	89,649	80.8	21,239	18,776	6,853	28,929
	10 mos.	202	1,113,782	9,163	1,148,071	177,401	230,967	33,945	351,126	61,135	852,798	74.3	295,275	237,862	151,206	266,000
Missouri-Kansas-Texas Lines	Oct.	3,188	2,858,000	251,217	3,408,199	249,683	255,643	125,146	954,079	141,235	1,744,280	51.2	1,663,919	1,456,696	1,297,886	1,711,447
	10 mos.	3,188	23,148,292	2,916,167	28,945,915	3,450,707	4,628,284	1,274,462	9,814,539	1,563,027	20,908,067	72.2	8,037,848	5,977,900	3,975,440	7,869,985
Missouri Pacific	Oct.	7,434	6,935,323	499,214	8,129,259	1,056,996	1,475,950	261,944	2,943,271	311,938	6,090,565	74.9	2,038,694	1,974,052	1,595,221	2,211,315
	10 mos.	7,445	68,983,023	6,194,882	82,364,682	10,037,998	14,002,997	2,728,024	29,663,972	3,335,468	59,913,954	72.7	22,450,728	18,954,076	15,326,066	17,762,029
Gulf Coast Lines	Oct.	1,037	598,452	45,753	697,909	98,480	146,561	41,656	197,880	55,847	540,623	77.46	157,286	108,178	71,527	254,159
	10 mos.	1,037	8,258,442	675,063	9,517,382	1,332,443	1,683,452	432,527	2,670,358	588,345	6,712,856	70.53	2,804,526	2,311,927	1,584,351	3,086,667
International-Great Northern	Oct.	1,159	939,830	77,042	1,140,014	130,417	204,179	31,186	452,303	56,705	884,807	77.61	255,207	211,863	111,172	193,712
	10 mos.	1,159	13,798,216	1,048,019	15,944,322	2,095,504	2,453,219	369,081	5,959,953	633,039	11,507,811	72.18	4,436,511	4,012,580	2,398,001	786,547
San Antonio, Uvalde & Gulf	Oct.	316	61,668	5,665	74,968	23,187	13,874	4,921	29,656	5,810	77,602	103.5	—2,634	—7,187	—32,546	—18,461
	10 mos.	316	1,008,020	93,881	1,191,587	325,701	166,710	53,441	313,145	63,026	920,495	77.2	271,092	223,866	—46,642	123,609
Mobile & Ohio	Oct.	1,152	744,150	30,334	825,054	135,219	154,727	48,651	357,073	46,688	738,461	89.5	86,593	39,407	—17,660	141,312
	10 mos.	1,152	7,819,235	362,159	8,711,275	1,276,338	1,677,318	496,431	3,676,795	491,091	7,601,126	87.3	1,110,149	511,554	—84,657	832,590
Monongahela	Oct.	177	379,028	1,429	382,970	15,000	35,000	1,600	87,142	8,919	147,661	38.6	235,309	214,268	136,790	144,727
	10 mos.	177	3,896,891	25,976	3,951,307	485,000	435,000	13,347	945,781	100,508	1,979,102	50.1	1,972,205	1,818,391	1,043,805	1,165,253
Monongahela Connecting	Oct.	6	.....	.....	60,845	9,948	22,180	250	36,252	2,963	71,593	117.7	—10,748	—17,138	—17,225	11,892
	10 mos.	6	.....	.....	881,854	124,280	242,419	2,793	473,580	27,895	870,967	98.8	10,887	—43,642	—41,971	212,796
Montour	Oct.	57	232,578	.....	233,313	27,785	41,627	1,541	49,971	6,876	127,681	54.7	105,632	103,276	117,964	126,884
	10 mos.	57	1,839,081	.....	1,848,902	223,257	409,616	14,260	461,996	73,106	1,180,194	63.8	668,708	647,712	817,728	838,860
Nashville, Chattanooga & St. Louis	Oct.	1,203	1,024,445	94,585	1,233,802	196,363	244,645	62,051	484,205	68,423	1,061,052	86.0	172,750	137,235	144,599	224,746
	10 mos.	1,203	10,522,915	1,233,823	12,964,358	2,224,323	2,702,588	684,985	5,159,481	757,336	11,586,163	89.4	1,378,195	856,414	715,774	1,995,244
Nevada Northern	Oct.	165	31,920	2,378	38,738	10,232	6,218	872	11,079	4,598	32,999	85.2	5,739	—3,619	26	7,223
	10 mos.	165	349,371	18,555	417,510	112,037	50,810	9,771	113,221	46,614	332,400	79.6	85,110	—253,928	—225,640	184,699
Newburgh & South Shore	Oct.	6	.....	.....	66,135	4,822	18,695	.....	34,026	6,247	63,790	96.5	2,345	—9,523	—7,293	—8,141
	10 mos.	6	.....	.....	809,308	126,453	228,462	.....	385,009	66,432	806,356	99.6	2,952	—110,103	—80,924	154,234
New Orleans Great Northern	Oct.	264	200,069	10,028	217,470	16,462	21,922	13,567	72,433	9,828	134,212	61.7	83,258	79,117	41,303	23,539
	10 mos.	264	1,830,146	108,175	2,002,794	175,613	261,141	143,372	595,071	102,634	1,277,831	63.8	724,963	627,390	388,804	263,465
New Orleans Terminal	Oct.	20	1,743	.....	165,068	10,981	8,270	.....	40,153	1,274	60,672	36.8	104,396	92,438	68,250	20,854
	10 mos.	20	20,288	.....	1,483,359	157,349	89,026	.....	466,730	15,434	728,533	49.1	754,826	635,218	417,215	358,123
New York Central	Oct.	11,421	20,963,060	5,884,946	31,106,696	4,220,668	6,580,565	804,145	12,116,677	1,334,014	25,511,739	82.0	5,594,957	2,979,935	1,868,245	5,653,647
	10 mos.	11,421	210,998,404	73,712,905	327,436,335	41,988,105	69,830,472	7,484,605	123,550,993	13,410,333	261,359,960	79.8	66,076,375	38,667,291	26,515,974	52,293,392
Indiana Harbor Belt	Oct.	118	.....	.....	845,343	105,000	50,000	4,438	330,740	24,739	539,685	63.8	305,658	255,710	170,562	269,893
	10 mos.	118	.....	.....	7,838,033	763,000	845,000	46,624	3,411,694	279,088	5,522,183	70.5	2,315,850	1,870,034	1,334,085	2,157,050
Pittsburgh & Lake Erie	Oct.	234	1,333,399	77,779	1,433,592	149,278	437,513	31,084	570,953	72,576	1,263,934	88.2	169,658	69,903	244,576	702,830
	10 mos.	234	13,897,202	1,002,594	15,342,675	1,435,329	4,683,290	334,346	6,033,748	770,802	13,292,161	86.6	2,050,514	1,004,702	2,824,728	6,459,758
New York, Chicago & St. Louis	Oct.	1,698	2,855,116	96,979	3,066,876	497,212	513,998	123,504	1,164,629	125,372	2,382,495	77.7	684,381	476,319	178,520	463,883
	10 mos.	1,698	29,002,724	1,269,238	31,446,083	4,305,783	5,411,976	1,225,264	11,942,407	1,259,913	24,089,240	76.6	7,356,843	5,152,384	2,416,929	5,317,739
N. Y., New Haven & Hartford	Oct.	2,069	5,026,381	2,624,377	8,658,436	1,189,126	1,218,693	96,736	2,929,274	278,837	5,848,057	67.5	2,810,379	2,409,981	1,776,432	2,590,543
	10 mos.	2,102	46,366,172	29,196,857	85,284,782	12,074,278	12,648,247	983,481	28,762,451	2,895,668	58,907,420	69.1	26,377,362	21,720,403	15,640,024	20,717,931

Revenues and Expenses of Railways

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1931—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures.	Maintenance of—Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930.
New York Connecting	Oct.	20	$177,838	$	$198,900	$30,153	$10,428	$	$37,549	$866	$78,996	39.7	$119,904	$83,904	$49,796	$103,869
	10 mos.	20	1,660,877	.....	1,851,385	229,527	81,072	.....	358,772	11,874	681,245	36.8	1,170,140	806,540	512,835	830,466
New York, Ontario & Western	Oct.	568	736,726	23,448	911,712	106,268	157,162	13,042	384,088	25,112	689,028	75.6	222,684	193,678	116,895	27,552
	10 mos.	568	7,226,379	1,062,573	9,746,106	1,171,705	1,644,545	149,006	3,769,915	278,373	7,047,068	72.3	2,699,038	2,286,052	1,583,408	872,801
Norfolk & Western	Oct.	2,282	6,935,901	179,143	7,353,101	852,594	1,236,809	135,890	1,778,514	256,224	4,273,469	58.1	3,079,632	2,403,664	2,612,354	3,082,853
	10 mos.	2,256	62,932,847	2,269,701	67,654,922	8,129,152	12,997,042	1,244,333	17,601,224	2,583,279	42,643 211	63.0	25,011,711	18,206,798	19,687,888	28,609,845
Norfolk Southern	Oct.	932	470,792	11,633	506,803	82,812	78,431	23,184	204,909	24,044	413,380	81.6	93,423	63,140	51,263	158,449
	10 mos.	932	4,823,285	161,759	5,232,674	797,795	795,291	250,110	2,119,456	248,918	4,210,358	80.5	1,022,316	552,281	380,156	641,911
Northern Pacific	Oct.	6,789	4,933,292	311,098	5,734,204	586,095	1,006,156	156,270	2,028,195	258,325	4,105,814	71.6	1,628,390	952,015	1,233,706	2,607,688
	10 mos.	6,789	43,512,427	4,742,105	53,381,007	7,179,987	11,962,862	2,005,996	20,022,233	2,574,695	44,593.695	83.5	8,787,312	2,147,265	5,007,306	11,500,909
Northwestern Pacific	Oct.	441	267,572	92,496	391,409	57,799	8,023	5,641	179,449	16,253	266,949	68.2	124,460	93,626	77,411	7,447
	10 mos.	441	2,171,577	1,151,567	3,673,350	762,511	579,218	59,415	1,793,914	169,576	3,360,237	91.5	313,113	—26,677	—140,729	204,010
Oklahoma City-Ada-Atoka	Oct.	132	45,298	897	48,892	9,557	7,641	1,404	16,378	2,525	37,146	76.0	11,746	6,640	—3,302	4,104
	10 mos.	132	534,757	13,826	573,464	158,009	41,177	13,412	171,708	29,475	407,173	71.0	166,291	115,773	367	—30,060
Pennsylvania Railroad	Oct.	10,914	27,536,350	6,533,368	38,206,879	3,140,588	7,164,493	761,636	14,308,033	1,525,975	27,349,154	71.6	10,857,725	7,487,679	6,284,609	9,912,913
	10 mos.	10,914	271,688,712	74,802,751	385,377,628	44,616,064	79,926,247	7,774,512	149,098,203	15,768,629	302,444,223	78.5	82,933,405	56,153,843	44,485,734	83,024,705
Long Island	Oct.	404	909,796	1,844,658	2,922,929	262,801	406,570	16,816	1,219,026	58,550	1,964,060	67.2	958,869	730,500	493,185	683,491
	10 mos.	404	8,093,187	21,339,039	31,003,758	2,811,094	4,446,548	175,804	12,214,648	606,899	20,257,404	65.3	10,746,354	8,499,751	6,581,092	6,965,851
Peoria & Pekin Union	Oct.	17	9.696	426	88,592	12,525	7,024	4,711	43,936	7,572	75,768	85.5	12,824	—1,693	17,503	50,311
	10 mos.	17	86,159	4,478	924,648	126,020	105,465	49,253	472,375	75,770	828,883	89.6	95,765	—57,035	175,909	352,722
Pere Marquette	Oct.	2,264	2,184,765	84,940	2,405,460	408,914	444,387	75,689	857,647	101,371	1,894,873	78.8	510,587	371,835	258,710	563,325
	10 mos.	2,264	20,515,389	1,325,923	23,286,632	3,945,688	4,597,621	714,234	9,281,798	1,057,010	19,675,012	84.5	3,611,620	2,122,971	1,135,265	4,463,713
Pittsburgh & Shawmut	Oct.	102	98,624	560	99,970	7,653	18,926	2,318	22,074	5,349	56,320	56.3	43,650	42,536	42,681	24,873
	10 mos.	102	767,640	10,714	785,633	113,028	203,766	16,259	206,569	40,948	580,570	73.9	205,063	192,345	202,223	271,862
Pittsburgh & West Virginia	Oct.	138	228,565	1,498	251,773	25,951	59,046	18,082	56,846	16,168	182,482	72.5	69,291	37,979	62,045	119,863
	10 mos.	115	2,244,197	19,661	2,496,009	281,716	657,407	189,544	552,982	172,193	1,940,229	77.7	555,780	284,680	537,408	1,397,054
Pittsburgh, Shawmut & Northern	Oct.	198	107,393	286	109,762	21,456	18,779	2,577	37,773	6,641	87,226	79.5	22,536	19,741	17,564	20,396
	10 mos.	198	1,057,828	3,724	1,081,862	199,671	193,753	15,821	370,878	67,265	847,388	78.3	234,474	206,351	171,884	135,299
Quincy, Omaha & Kansas City	Oct.	249	32,365	2,548	39,714	20,477	4,982	754	19,093	1,852	47,038	118.4	—7,324	—12,090	—14,625	8,596
	10 mos.	249	352,017	31,937	434,823	203,973	52,972	8,486	193,748	21,571	479,813	110.3	—44,990	—92,574	—117,363	—52,757
Reading	Oct.	1,458	5,748,920	346,888	6,465,478	593,843	1,113,489	74,427	2,387.936	201.068	4.395.166	68.0	2,070,312	1,879,938	1,856,673	1,539,641
	10 mos.	1,456	52,569,191	3,852,483	60,218,727	8,721,296	15,043,924	902,376	24,441,744	2,160,657	51,485,309	85.5	8,733,418	6,558,124	6,248,229	9,888,945
Atlantic City	Oct.	163	104,333	57,725	175,739	50,257	18,207	4,697	137,965	4,638	215,859	122.8	—40,120	—80,570	—86.257	—119,679
	10 mos.	163	1,016,449	1,270,368	2,441,894	457,083	214,983	46,035	1,601,868	47,673	2,369,256	97.0	72,638	—332,891	—432,418	—630,231
Richmond, Fredericksburg & Potomac	Oct.	117	260,990	139,521	525,815	84,004	133,488	13,556	235,255	34,702	511,575	97.3	14,240	—4,186	—32.505	23,360
	10 mos.	117	4,167,557	2,064,967	7,656,009	804,272	1,469,423	98,521	2,825,226	366,679	5,732,618	74.9	1,923,391	1,567,858	1,012,842	1,038,599
Rutland	Oct.	413	240,468	55,816	404,383	80,855	71,197	15,344	167,659	15,359	352,519	87.2	51,864	28,479	35,462	56,064
	10 mos.	413	2,311,650	609,540	3,883,670	783,123	741,373	116,406	1,650,715	167,284	3,465,300	89.2	418,370	202,570	250,578	543,526
St. Louis-San Francisco	Oct.	5,266	3,957,641	351,215	4,682,288	517,231	810,802	121,177	1,645,574	192,620	3,312,406	70.74	1,369,882	1,010,465	1,018,456	1,928,719
	10 mos.	5,266	38,492,698	4,592,452	47,070,010	5,091,263	8,397,157	1,181,806	16,762,340	1,995,620	33,765,261	71.73	13,304,749	9,845,376	9,442,733	14,444,501
Ft. Worth & Rio Grande	Oct.	233	35,270	2,465	45,221	20,408	13,145	2,879	32,910	3,237	72,578	160.5	—27,357	—31,814	—40,224	—32,382
	10 mos.	233	459,706	35,064	565,730	184,943	133,561	31,021	341,325	40,599	730,540	129.1	—164,810	—210,376	—299,973	—255,479
St. Louis, San Francisco & Texas	Oct.	262	93,219	4,527	103,006	19,625	20,736	6,333	51,620	8,486	106,795	103.7	—3,789	—7,954	—39.733	11,592
	10 mos.	262	1,077,614	61,392	1,190,253	229,331	192,502	58,924	516,467	77,257	1,075,084	90.3	115,169	72,588	—237,605	—92,516
St. Louis Southwestern Lines	Oct.	1,913	1,352,048	27,642	1,473,803	128,233	212,693	93,322	440,454	76,356	955,460	64.8	518,343	427,346	337,275	313,776
	10 mos.	1,913	13,868,935	376,993	15,192,744	1,704,735	2,213,761	941,180	5,067,773	809,198	10,793,938	71.0	4,398,806	3,500,106	2,046,842	2,091,144
San Diego & Arizona	Oct.	155	26,589	6.668	35,961	10,432	12,599	2,681	18,278	6,617	51.574	143.4	—15,613	—20,068	—16,990	—3,152
	10 mos.	155	511,354	130,363	663,457	131,209	143,073	32,747	216,200	69,602	603,519	91.0	59,938	8,574	28,465	156.683
Seaboard Air Line	Oct.	4,478	2,355,001	251,966	2,864,992	499.505	654,836	170,308	1,189.168	171,396	2,698.465	94.2	166,527	—33,768	—57,600	531,724
	10 mos.	4,480	29,052,901	3,670,454	36,222,962	5.887,711	7,104,110	1,772,086	13.499,108	1,757,065	30,312,244	83.7	5,910,718	3,093,056	2,411,905	5,058,834
Southern Ry.	Oct.	6,730	6,596,711	825,271	8,092,779	1,240,075	1,627,834	182,844	2,989,919	318,445	6,409,389	79.2	1,683,390	1,077,941	926,212	2,250,252
	10 mos.	6,730	66,295,980	10,597,104	83,630,304	12,963,965	17,295,822	2,128,256	31,531,562	3,367,357	67,886,809	81.2	15,743,495	9,320,400	7,362,044	16,284,545
Alabama Great Southern	Oct.	315	420.002	53,520	512.872	109.017	133,362	15,353	166,742	20,791	449,448	87.6	63,424	29,219	34,060	110,129
	10 mos.	315	4.223,971	683,525	5,299,032	1,086,583	1.287,492	161,018	1,885,547	215,276	4,679,755	88.3	619,277	202,339	309,764	977,578
Cinn., New Orleans & Tex. Pac.	Oct.	338	860.247	76.621	1,003,306	202.870	276.020	32.852	302.293	48,426	867,435	86.5	135,871	67,044	86,885	286,989
	10 mos.	338	10,589,021	1,173,095	12,528,273	2,293,050	3,058,936	345,194	3,777,518	529,935	10,068,599	80.4	2,459,674	1,725,709	1,732,384	2,966.369

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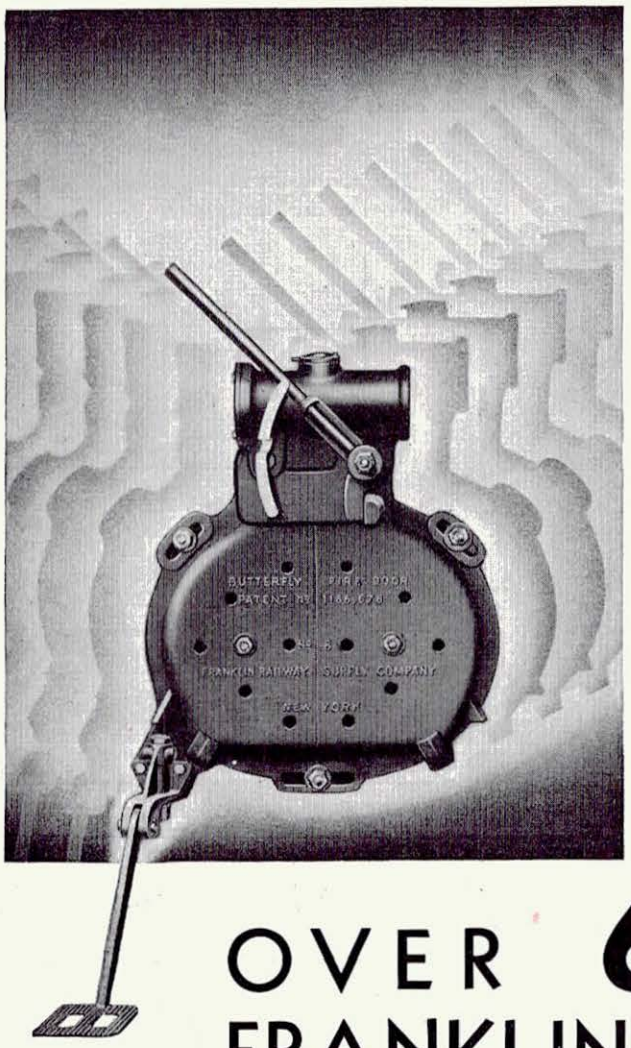

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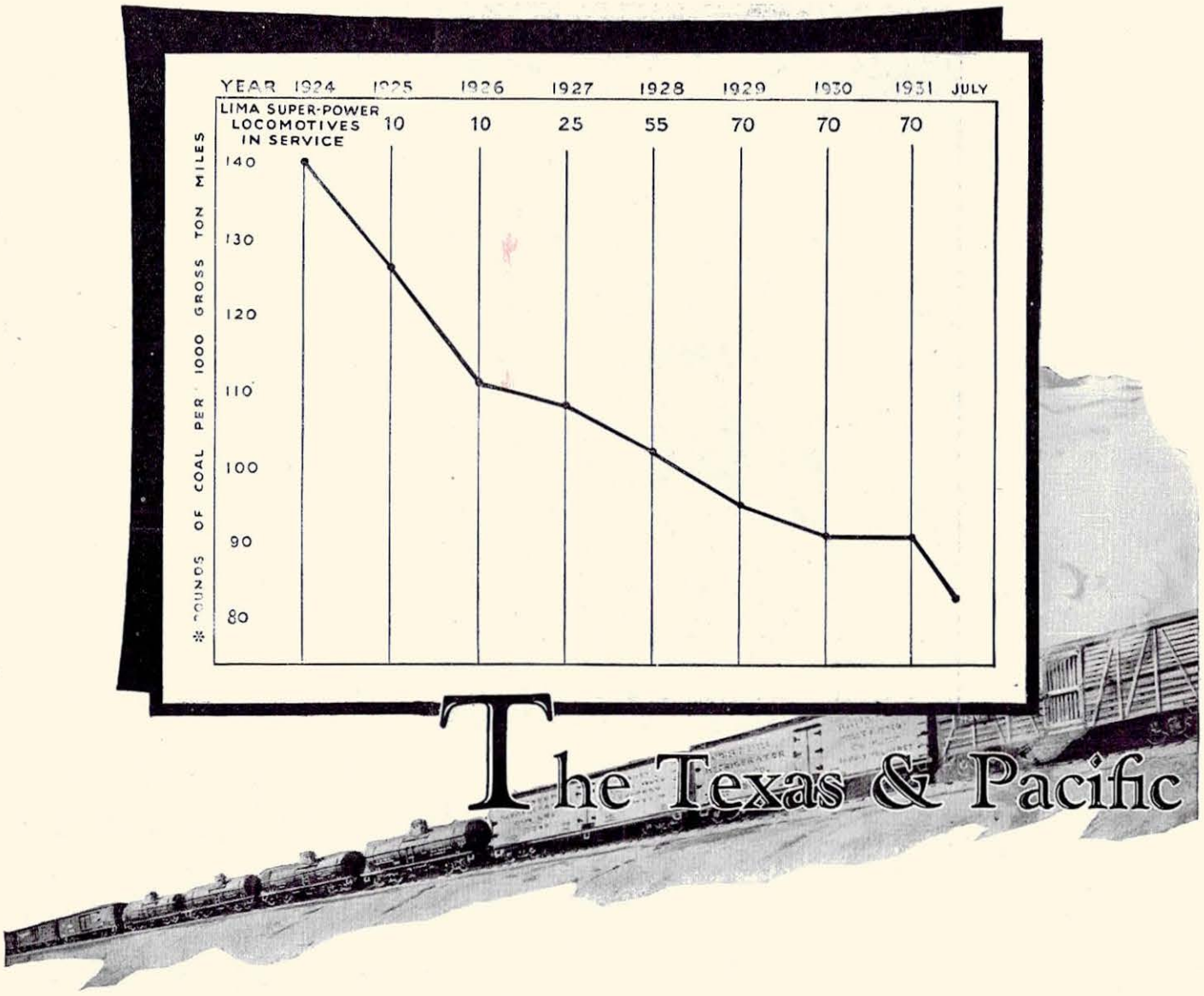
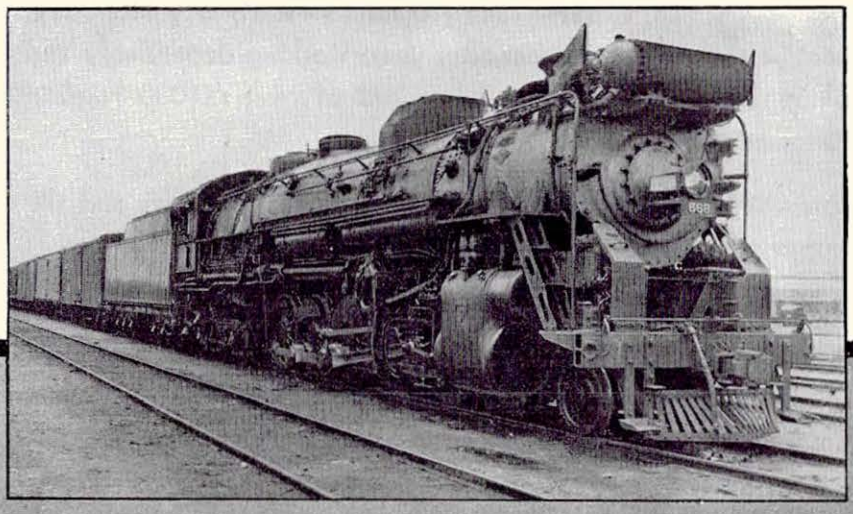
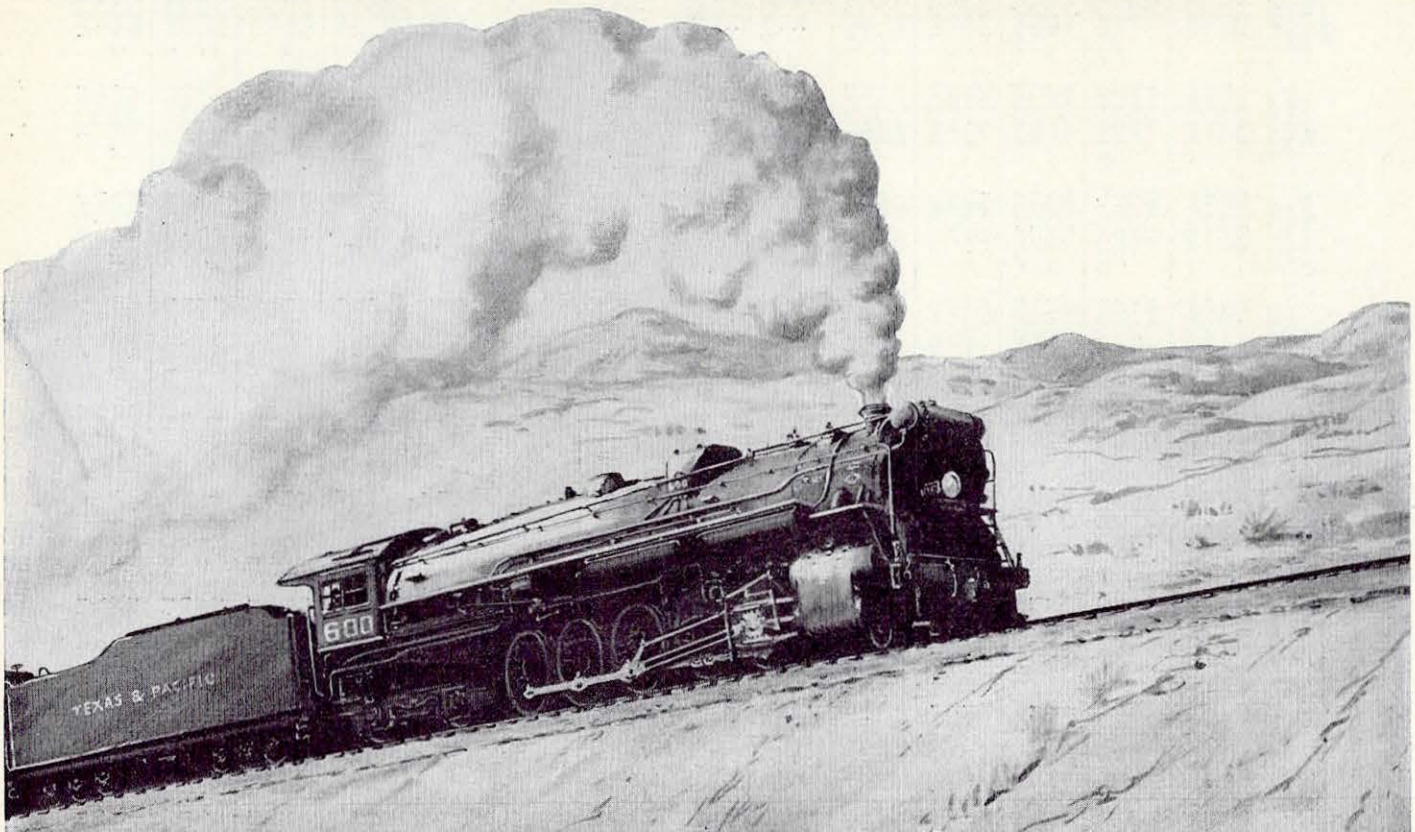


The Texas & Pacific

Engine No. 668, one of the Texas Type Locomotives built by LIMA for the Texas and Pacific.



*Actual oil consumption is equated to coal.



with SUPER-POWER Locomotives

Leads All Class 1 Railroads in Fuel Economy

EACH year from 1924 to 1931 fuel performance on the Texas and Pacific has improved with remarkable steadiness. During this period the railroad has placed 70 Lima Super-Power Locomotives in service.

That these engines have been an enormous factor in making new fuel performance records is shown by the above chart. Starting in 1924 at 140 pounds of coal per 1000 gross ton miles, a saving of 42% has been effected.

In July 1931 the Texas and Pacific had the remarkably fine fuel performance record of 81 pounds of coal per 1000 gross ton miles.

Replacing obsolete engines with Super-Power is the sure way to better fuel performance and operating economy.

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS

Incorporated

LIMA, OHIO

Revenues and Expenses of Railways

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1931—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1930.
Georgia Southern & Florida	Oct.	397	$135,395	$20,345	$173,095	$[illegible],940	$52,953	$1,617	$71,968	$2,683	$184,516	106.6	—$11,421	—$32,903	—$20,897	$13,680
	10 mos.	397	1,833,319	426,629	2,460,680	546,291	597,584	19,961	898,138	27,021	2,128,480	86.5	331,200	125,024	132,913	302,001
New Orleans & Northeastern	Oct.	204	212,322	25,128	256,478	46,145	66,396	11,431	80,928	13,135	220,344	85.9	36,134	—4,441	—18,753	13,829
	10 mos.	204	2,123,653	341,119	2,657,726	492,053	630,743	97,893	997,728	137,915	2,380,632	89.6	277,094	—115,979	—318,064	193,395
Northern Alabama	Oct.	110	56,965	1,065	60,207	19,436	1,510	1,173	19,614	2,605	44,367	73.7	15,840	11,380	—3,481	20,739
	10 mos.	110	529,927	17,991	568,746	160,136	23,093	15,905	213,897	27,455	440,402	77.4	128,344	74,111	—69,548	42,070
Southern Pacific	Oct.	9,114	9,524,996	1,826,558	12,423,167	1,188,279	1,756,894	311,753	3,976,880	608,901	8,088,391	65.1	4,334,776	3,151,097	2,368,427	5,242,331
	10 mos.	9,121	92,080,057	23,244,143	126,767,955	14,828,048	20,780,411	3,546,517	44,323,430	6,011,735	91,982,076	72.6	34,785,879	23,114,117	18,622,493	31,124,500
So. Pacific Steamship Lines	Oct.	....	492,057	42,887	557,946	19,725	66,940	19,853	380,077	31,650	518,245	92.9	39,701	39,400	39,268	51,722
	10 mos.	....	4,598,993	450,138	5,382,507	202,655	1,370,891	201,995	4,010,821	318,161	6,104,523	113.4	—722,016	—734,338	—735,343	—293,446
Texas & New Orleans	Oct.	4,701	3,110,593	359,361	3,911,367	596,788	694,688	137,795	1,289,611	223,762	2,961,866	75.7	949,501	682,589	490,862	1,438,065
	10 mos.	4,700	30,914,869	4,728,755	39,802,373	6,253,877	7,521,009	1,558,378	14,079,727	2,316,568	31,876,004	80.1	7,926,369	5,286,454	2,848,656	6,940,923
Spokane, Portland & Seattle	Oct.	555	431,787	53,163	526,875	80,006	81,775	11,946	166,020	24,743	365,677	69.4	161,198	72,860	53,576	132,675
	10 mos.	555	4,287,136	563,950	5,321,944	630,548	792,573	118,022	1,705,461	232,248	3,496,810	65.7	1,825,134	953,882	856,646	1,128,058
Tennessee Central	Oct.	295	212,084	4,749	226,110	31,480	32,945	8,153	81,876	11,879	166,332	73.6	59,778	54,363	38,492	57,775
	10 mos.	295	2,068,204	74,723	2,245,486	420,830	363,197	84,225	823,941	133,827	1,822,594	81.2	422,892	367,386	210,794	338,718
Terminal R. R. Assn. of St. Louis	Oct.	55	.....	.....	621,101	55,261	35,330	4,081	300,242	21,303	418,874	67.4	202,227	131,071	200,771	179,104
	10 mos.	55	.....	.....	6,734,525	859,746	614,663	39,354	3,256,779	222,457	5,022,208	74.6	1,712,317	842,300	1,593,204	2,014,895
Texas & Pacific	Oct.	1,950	1,904,371	226,938	2,376,502	311,770	374,906	80,016	742,470	115,145	1,643,220	69.1	733,282	607,970	529,790	686,749
	10 mos.	1,951	20,578,267	2,806,762	25,600,965	3,077,556	4,183,469	795,733	8,077,848	1,154,219	17,455,326	68.2	8,145,639	6,770,327	4,955,192	6,027,401
Texas-Mexican	Oct.	162	46,642	1,178	51,623	11,190	14,326	3,390	27,906	6,663	63,475	122.9	—11,852	—16,886	—20,395	593
	10 mos.	162	626,036	16,589	745,414	148,533	151,829	33,765	350,623	74,572	754,962	101.3	—9,548	—59,745	—115,330	27,668
Toledo, Peoria & Western	Oct.	239	140,612	64	143,797	21,863	13,791	16,963	49,210	8,723	110,550	76.9	33,247	27,888	16,940	45,676
	10 mos.	239	1,372,048	945	1,401,111	265,553	132,581	149,398	485,525	91,247	1,124,304	80.2	276,807	228,062	150,021	248,209
Toledo Terminal	Oct.	28	.....	.....	74,421	6,947	12,861	583	31,481	4,602	56,474	75.9	17,947	2,504	27,110	28,309
	10 mos.	28	.....	.....	844,419	125,695	133,966	5,789	355,007	48,748	669,144	79.2	175,275	29,858	271,601	240,543
Ulster & Delaware	Oct.	128	38,442	1,924	75,912	15,867	10,290	1,135	39,043	3,465	69,800	92.0	6,112	1,612	—1,499	—9,910
	10 mos.	128	311,197	109,386	793,105	155,840	117,348	11,191	402,440	36,918	723,737	91.3	69,368	10,755	—15,469	12,219
Union R. R. of Penna.	Oct.	45	.....	.....	352,588	61,538	132,462	210	148,406	13,693	356,309	101.1	—3,721	—9,921	35,947	147,310
	10 mos.	45	.....	.....	4,369,108	741,555	1,382,335	1,637	2,022,877	142,763	4,291,126	98.2	77,982	—13,396	494,195	2,236,624
Union Pacific	Oct.	3,768	7,621,447	659,691	8,977,766	338,877	1,171,507	140,536	2,332,222	330,907	4,422,127	49.3	4,555,639	4,193,546	3,594,566	5,210,356
	10 mos.	3,766	61,397,232	8,174,902	76,503,180	7,960,333	15,895,835	1,663,143	22,281,149	3,418,226	52,509,136	68.6	23,994,044	18,301,876	15,072,961	21,675,666
Oregon Short Line	Oct.	2,529	2,361,788	136,409	2,657,484	182,804	291,906	43,675	792,322	118,298	1,458,773	54.9	1,198,711	987,409	796,851	1,446,206
	10 mos.	2,531	19,540,861	1,869,563	23,216,868	3,636,460	3,655,169	521,903	7,360,619	1,251,220	16,875,443	72.7	6,341,425	3,612,837	2,561,045	4,840,363
Oregon-Wash. R. R. & Nav. Co.	Oct.	2,337	1,385,471	112,713	1,668,753	167,874	185,362	64,855	625,474	113,358	1,168,967	70.1	499,786	316,345	176,021	425,328
	10 mos.	2,337	13,481,421	1,457,006	16,748,292	2,942,805	2,404,953	702,752	6,565,615	1,216,888	13,997,884	83.6	2,750,408	912,556	—180,408	1,097,385
Los Angeles & Salt Lake	Oct.	1,249	1,292,172	184,731	1,620,312	44,752	167,821	58,654	499,756	78,474	895,850	55.3	724,462	562,867	415,147	379,550
	10 mos.	1,247	12,155,001	2,517,392	16,167,277	2,462,082	2,478,502	707,986	5,230,187	842,341	12,257,325	75.8	3,909,952	2,420,804	1,131,076	2,044,499
St. Joseph & Grand Island	Oct.	258	284,280	3,362	300,300	20,159	31,530	3,365	85,948	15,901	156,969	52.3	143,331	123,384	86,331	126,997
	10 mos.	258	2,519,513	46,291	2,677,773	489,207	336,278	34,281	872,374	173,053	1,918,958	71.7	758,815	601,624	315,119	583,954
Utah	Oct.	111	140,476	.....	140,887	19,401	23,747	365	29,078	6,753	79,344	56.3	61,543	49,332	31,696	63,201
	10 mos.	111	976,994	36	981,784	145,773	268,370	3,701	230,696	58,121	705,705	71.9	276,079	195,943	71,559	137,942
Virginian	Oct.	601	1,397,083	9,351	1,476,123	116,204	230,569	22,615	270,581	31,488	670,102	45.4	806,021	636,021	725,313	776,735
	10 mos.	590	12,199,292	137,066	13,062,229	1,276,509	2,325,309	164,869	2,790,361	323,195	6,875,880	62.6	6,186,349	4,616,278	5,365,190	6,105,268
Wabash	Oct.	2,523	3,362,267	280,091	3,957,597	602,096	767,144	225,554	1,789,786	232,913	3,642,501	92.0	315,096	84,368	—310,980	854,463
	10 mos.	2,523	36,134,469	3,418,109	42,675,332	4,551,852	7,689,847	1,983,451	18,971,117	2,309,207	35,726,913	83.7	6,948,419	4,784,908	704,978	6,280,513
Ann Arbor	Oct.	293	305,172	7,334	325,221	44,358	62,933	25,115	148,828	12,028	293,140	90.1	32,081	9,830	—9,824	59,135
	10 mos.	293	3,216,377	63,681	3,410,560	340,953	689,663	160,622	1,882,516	160,541	2,935,273	86.1	475,287	254,734	30,159	458,568
Western Maryland	Oct.	891	1,222,533	7,653	1,291,673	162,113	203,706	48,939	330,811	40,385	790,525	61.2	501,148	431,148	429,356	478,451
	10 mos.	893	11,827,113	107,388	12,565,516	1,724,266	2,193,132	444,343	3,404,741	415,589	8,223,060	65.4	4,342,456	3,582,456	3,638,816	4,475,595
Western Pacific	Oct.	1,051	1,214,859	52,526	1,415,674	130,497	152,942	62,002	487,056	43,649	919,895	65.0	495,779	401,594	320,680	930,377
	10 mos.	1,051	9,320,011	709,869	10,970,299	1,879,778	1,899,896	673,433	4,579,037	476,674	9,755,951	88.9	1,214,348	284,003	227,170	1,648,037
Wheeling & Lake Erie	Oct.	511	929,079	5,801	992,711	135,698	236,860	34,696	330,753	41,665	779,046	78.5	213,665	116,588	109,608	206,369
	10 mos.	511	9,534,214	91,366	10,259,779	1,292,343	2,614,208	345,211	3,373,913	406,868	8,040,422	78.4	2,219,357	1,195,927	1,148,415	2,946,621
Wichita Falls & Southern	Oct.	203	46,167	50	48,240	8,534	7,341	2,618	15,703	3,217	36,880	76.45	11,360	7,148	3,695	16,814
	10 mos.	203	542,240	891	562,264	107,411	82,564	24,264	177,854	34,378	422,139	75.08	140,125	96,851	56,182	116,244

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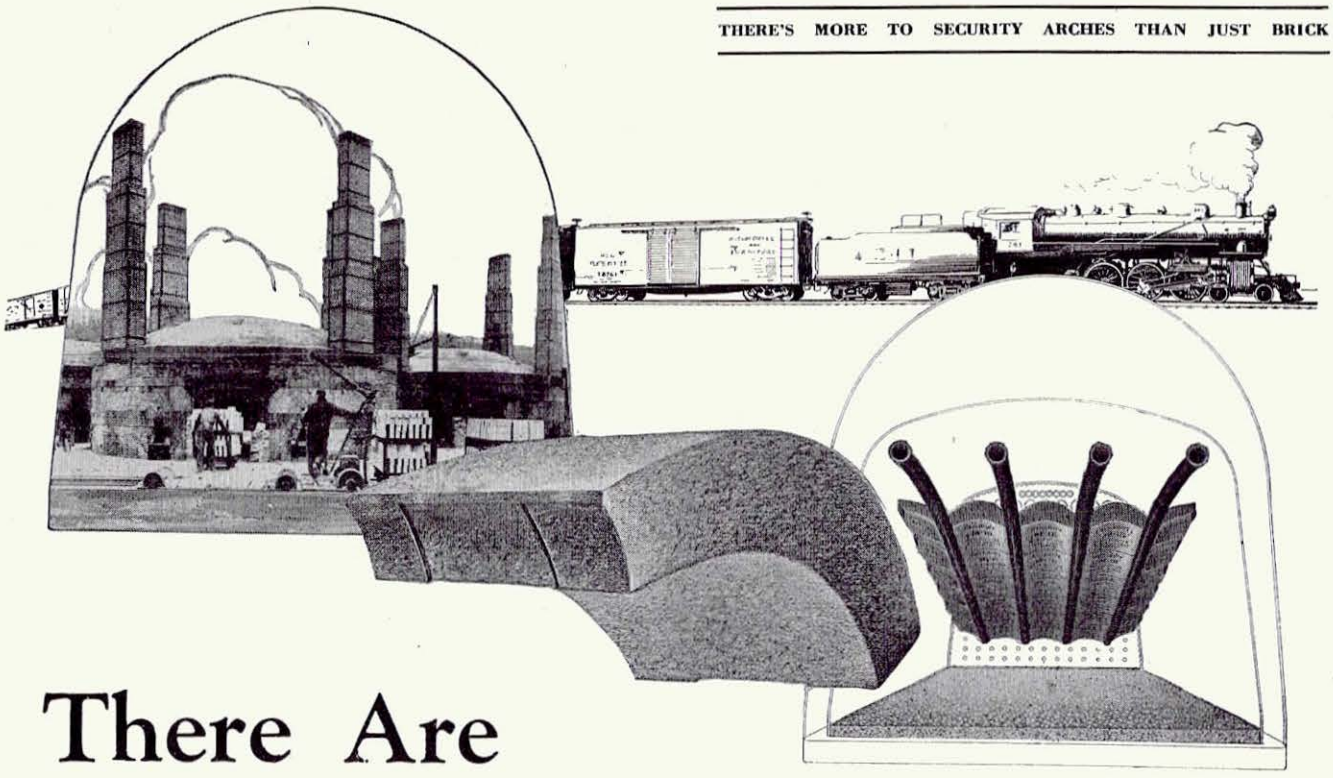
THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK



There Are Two Sides To Arch Brick

TO give a long, economical life, Arch Brick must embody experience of two different kinds.

First, the experience of the railroad man with locomotive combustion. For twenty-one years, the American Arch Company has specialized in the study of railroad conditions in relation to Arch Brick.

Second, competent brick makers possessed of high-grade clay deposits and backed by sound experience in refractory manufacture.

HARBISON-WALKER REFRACTORIES CO.
Pennsylvania
Ohio
Kentucky
Alabama
Missouri

NORTH AMERICAN REFRACTORIES CO.
Pennsylvania
Kentucky

IRONTON FIRE BRICK CO.
Ohio

DENVER SEWER PIPE & CLAY CO.
Colorado

ATHENS BRICK & TILE CO.
Texas

MOULDING-BROWNELL CORP.
Ohio

GLADDING-McBEAN & CO.
California
Washington

DIAMOND FIRE BRICK CO.
Colorado

DOMINION FIRE BRICK & CLAY PRODUCTS LTD.
Saskatchewan, Canada

CANADA FIRE BRICK CO., LTD.
Ontario, Canada
Quebec, Canada

The above companies provide the second part of the combination. They serve the railroads thru the American Arch Company exclusively, thus completing a well-rounded Arch Brick service.

AMERICAN ARCH COMPANY

Incorporated

LOCOMOTIVE COMBUSTION SPECIALISTS

NEW YORK CHICAGO

NEWS

(Continued from page 913)

reduced in the ten months' period by $23,005,511 to a total of $143,164,062. Net revenue for the ten months of 1931 was $5,407,518, a decrease of $18,296,129 as compared with the 1930 period.

Wage Reductions in Effect in Canada

With the general chairmen of the engine and train crew and telegraph brotherhoods waiting to hear from local unions across Canada the attitude of 26,000 employees toward the 10 per cent wage reduction, a period of marking time has followed the publication of the conciliation board report recommending this reduction. In the meantime the railways have announced that the reduction has been placed into effect as of November 15. The unions involved have protested the making of the reduction retroactive.

Club Meetings

The Railway Club of Pittsburgh (Pa.) will hold its next meeting on Thursday evening, December 17 (a week prior to the regular date) at Fort Pitt Hotel, Pittsburgh. C. M. Yohe, vice-president of the Pittsburgh & Lake Erie, will speak on The Part Transportation Has Played in the Development of Pittsburgh.

The Railway Car Men's Club of Peoria and Pekin will hold its next meeting in the Union Station, Peoria, Ill., on Friday, December 18, at 6:45 p.m. The speaker will be H. R. Morrison of the Bureau of Explosives.

New Jersey Commission Suspends Freight Rates

The Public Utility Commission of New Jersey has suspended the operation within that state of the freight rates which went into effect on December 3 (in accordance with the decision of the Interstate Commerce Commission in the Eastern Class Rates Case) and has begun hearings on the protests of shippers that the new rates are excessive and unfair. Testimony of railroad traffic officers was taken on December 7, and the hearings have been adjourned to December 18.

P.R.R. to Start New York-Philadelphia Electric Service Next Summer

The Pennsylvania expects to complete electrification, for passenger service, of its main line between New York and Philadelphia sometime next summer, it was announced on December 6 by General W. W. Atterbury, president of the railroad. According to present plans, electric operation of all passenger trains between the two cities will be inaugurated as soon as the electrification work is finished, thus marking completion of the first unit of the Pennsylvania's electrification project, which eventually will provide electrified service for both freight and passenger trains from New York to Washington.

Approximately 6,000 men are now employed on this work, pushing to completion by next summer the electrification of approximately 585 miles of track between New York and Philadelphia. With completion of the freight track electrification in the same territory, electrified trackage will total 745 miles, including yards.

Definite schedules for the operation of passenger trains under electric power have not yet been worked out, but it is expected that the running time between New York and Philadelphia, 91.3 miles, will be substantially reduced, both for local and through trains. An aggregate of 55,000 passengers is now being carried daily over the main line between the two cities, by some 300 trains, and when electrification of the line is later completed for freight train operation, it is estimated that both freight and passenger train movements will average 23,500 train miles daily.

The Pennsylvania's lines between Trenton, N. J., and Wilmington, Del., through Philadelphia, are already electrified. From the New York end, electrification is being pushed rapidly and is now nearing completion as far as New Brunswick, N. J., 32.7 miles. When the entire 49-mile stretch from Manhattan Transfer, just outside of New York, to Trenton, is completed, everything will be in readiness to operate passenger trains by electric locomotives from Philadelphia, and possibly from Wilmington, directly into Pennsylvania Station, New York. Foundations for the steel poles which will carry the overhead electric wires are now being laid between New Brunswick and Trenton. This work, which is practically completed, will be followed by the erection of poles and catenary and transmission wires, which will require about six months. Work on the foundations for the steel supports from Wilmington south to Washington through Baltimore is also being pushed rapidly ahead. About one-third of the foundations have been laid, and the remainder will be in shortly after the first of 1932. Construction of the foundations alone on these two sectors of the line will cost about $3,000,000.

Rapid progress is also being made on the installation of a new telegraph and signal conduit, costing $7,000,000, between New Brunswick and Trenton, and between Wilmington and Washington, in connection with the electrification project. Construction of this underground conduit, which will carry the railroad's communication wires and the signal system controlling operation of all trains, will complete underground installation of the company's entire telegraph, telephone and signal system for a distance of 225 miles between New York and Washington.

Scheduled for delivery next summer, when the New York-Philadelphia electrified lines will go into operation, the Pennsylvania has on order 90 electric passenger locomotives, known as Class P-5a. These are being manufactured by the General Electric Company, the Westinghouse Electric & Manufacturing Company and the Altoona works of the Pennsylvania Railroad. The first engines of this type have been in test operation between Wilmington and Trenton for more than a year.

Officers of the Pennsylvania also stated that the program of improvement announced by President Atterbury last February was being carried through on schedule. At that time, it was announced that improvements costing a total of $175,000,000 would be completed in 2½ years instead of four years, as originally planned, because of lower commodity prices and the greater efficiency of labor during the current depression period.

Equipment and Supplies

LOCOMOTIVES

THE ALASKA RAILROAD has ordered one locomotive of the 4-8-2 type for passenger and freight service from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of November 7.

THE LONE STAR CEMENT COMPANY has ordered from the American Locomotive Company two 0-4-0 tank locomotives to have a total weight in working order of 53,000 lb. and 12-in. by 18-in. cylinders, and one 2-6-2 tank locomotive to have a total weight in working order of 103,000 lb. and 15-in. by 20-in. cylinders. These locomotives are for service in Brazil.

THE DELAWARE, LACKAWANNA & WESTERN has ordered ten 4-8-4, Pocono type, heavy, high-speed locomotives from the American Locomotive Company. These locomotives will have a total weight in working order of 425,000 lb. and 28 by 32 in. cylinders. Each locomotive and tender will weigh 707,000 lb. Delivery is to be made within 90 days. Inquiry for this equipment was reported in the *Railway Age* of November 7. The Lackawanna will also build six eight-wheel switching locomotives in its own shops at Scranton, Pa.

FREIGHT CARS

THE CHICAGO GREAT WESTERN is asking for prices on material for repair of 500 freight cars.

MISCELLANEOUS

THE LOCOMOTIVE FIREBOX COMPANY has received an order for 80 thermic syphons for 20 locomotives being constructed by the American Locomotive Company and the Baldwin Locomotive Works for the Lehigh Valley.

THE AMERICAN CAR & FOUNDRY CO. has ordered 11,000 all-aluminum doors from the Morton Mfg. Co. for use in the 500 subway cars which are being constructed for the New York City subway now nearing completion. Twenty-two doors are being installed in each car.

THE FOLLOWING OFFICERS have been elected by the Dallas Traffic Club for the ensuing year: President, H. G. Smith, district freight agent of the Missouri-Kansas-Texas; first vice-president, A. C. Webb, traffic manager of the Atlantic & Pacific Tea Co.; second vice-president, F. G. Stebbins, district freight representative of the Baltimore & Ohio; third vice-president, F. G. Robinson, traffic manager of the Lone Star Gas Company; and secretary-treasurer, George J. Adamcik, freight representative of the Northern Pacific.

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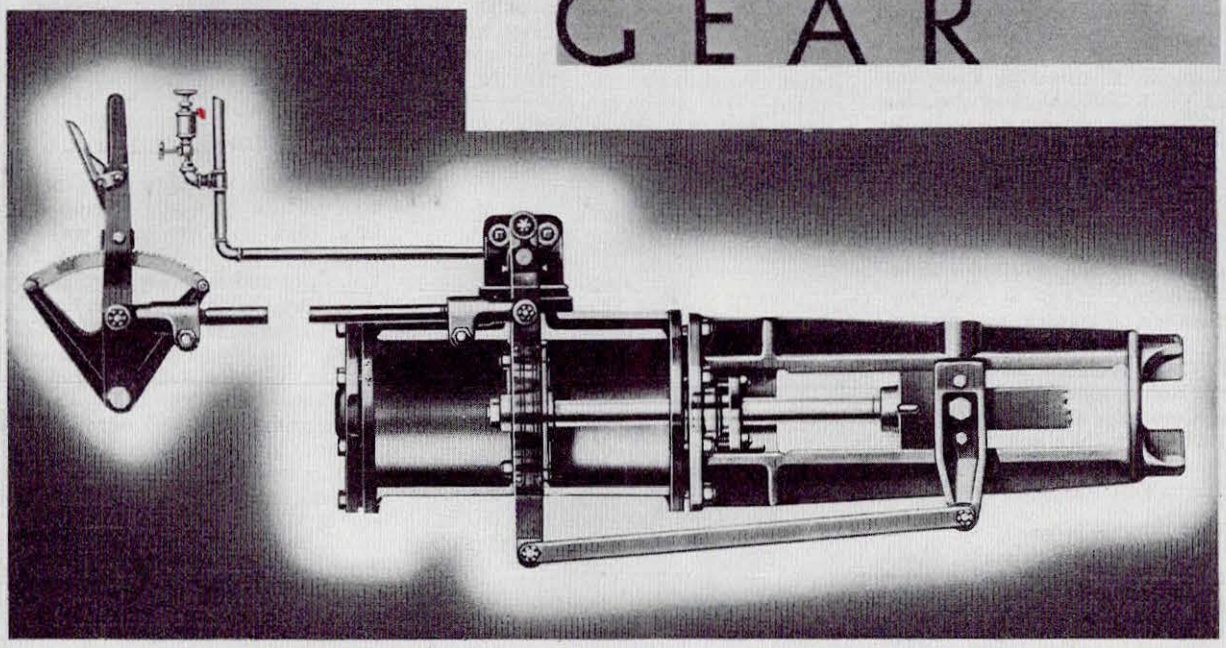
Alco REVERSE GEAR



SIMPLE
ACCURATE
EASILY MAINTAINED
REASONABLY PRICED

•

AMERICAN LOCOMOTIVE CO.
30 CHURCH STREET NEW YORK, N. Y.

Supply Trade

Thomas J. Harte, assistant general sales manager of the **North American Cement Corporation** has been elected vice-president and general sales manager to succeed Frederick A. Boeye, deceased. Mr. Harte will have his headquarters as formerly at New York.

John A. Kleinhuizen, formerly engineer with the Pullman Company, Chicago, has been appointed engineer for the **Dayton-Roderwald Company,** Dayton, Ohio, a subsidiary of the **Dayton Rubber Manufacturing Company.** Mr. Kleinhuizen will specialize in axle train lighting devices.

The Wellman Engineering Company, Cleveland, Ohio, has acquired the clam shell bucket and heavy-duty trailer business of the G. H. Williams Company, Erie, Pa., including good-will, drawings, patterns, inventions, patents, etc. The engineering, manufacture and sale of these buckets and trailers will be transferred to the Wellman Engineering Company plant at Cleveland. **W. C. Swalley,** secretary and general manager; **A. J. Lichtinger,** assistant manager; **C. F. Weiblen,** sales manager and **P. T. Robin,** chief engineer of the Williams Company at Erie, will be associated with The Wellman Engineering Company at Cleveland in the manufacture and sale of this equipment.

Col. R. H. Morse, formerly vice-chairman of the board of **Fairbanks, Morse & Co.,** Chicago, has been elected president and general manager to succeed **W. S. Hovey,** resigned. Col. Morse was born at Chicago on December 6, 1878, and in 1895, entered the employ of Fairbanks, Morse & Co., the firm founded by his father, C. H. Morse. Here he began his career with the company as

Colonel R. H. Morse

an apprentice at the Beloit factory (then known as Fairbanks-Morse Manufacturing Company) and, except during his military service, when he was lieutenant-colonel in the Signal Corps, he has been with the company continuously since that time. In the 36 years, he has been employed in various positions as salesman, department manager, branch house manager, sales manager, president of the manufacturing division, vice-president in charge of purchases, first vice-president, vice-chairman of the board and now president and general manager. Col. Morse is also a director of E. & T. Fairbanks & Co., the Canadian Fairbanks-Morse Co., Ltd., the E. & T. Fairbanks & Co., Ltd., and the Central Republic Bank and Trust Company.

Shortly after graduating from Cornell University, Mr. Hovey became assistant superintendent of the Sheffield Car Company, one of the early subsidiaries of Fairbanks, Morse & Co. He later became superintendent, which position he held until 1913, when he was made manager of the Engine division of the Beloit plant. A few months later he was promoted to general manager of the Beloit Works and in 1919, he was elected vice-president in charge of manufacturing activities. In 1924 he was

W. S. Hovey

made vice-president and general manager and in 1927, he was elected to the presidency.

OBITUARY

Donald Fraser, director and former vice-president of the Chain Belt Company, Milwaukee, Wis., died on November 20, at the age of 78 years. Mr. Fraser, formerly engaged in the pattern-making business in Minneapolis and Milwaukee, went to the Chain Belt Company in 1895 and was active in the early developments of the company, contributing many important inventions to the chain business. He subsequently became vice-president and works manager. Mr. Fraser retired in 1917, and was made a director. He was also a director of the Sivyer Steel Casting Company and the Federal Malleable Company, both of Milwaukee.

Clarence H. Howard, former president of the Commonwealth Steel Company, and later chairman of the board of the General Steel Castings Corporation, died on December 6 at the Christian Science sanitarium, Boston, Mass., after a long illness of heart disease. Mr. Howard was born on February 22, 1863, at Centralia, Ill., and was graduated from Manual Training School of Washington University in 1885. He learned the machinists trade

Clarence H. Howard

and served as foreman and general foreman in the Missouri Pacific shops in 1886, then for two years was superintendent of the Missouri Car & Foundry Company and later assistant master mechanic on the Missouri Pacific. He then was manager of the Scarritt Car Seat Works and assistant general manager of the St. Charles (Mo.) Car Company. He was subsequently for eight years western manager and secretary of the Safety Car Heating & Lighting Company; then served as vice-president and general manager of the Shickle, Harrison & Howard Iron Company and later as vice-president of the American Steel Foundries. He was president of the Commonwealth Steel Company, from 1904 until it was consolidated with the General Steel Castings Corporation in August, 1929, and then served as chairman of the board of the latter company until his resignation in May of this year.

TRADE PUBLICATION

POLES.—The National Lumber & Creosoting Co., Texarkana, Ark., has issued three bulletins presenting the advantages of standardization in pole sizes and strengths of material. Bulletin No. 1 presents in tabular and graphic form a comparison of southern yellow pine pole sizes, established by the new specifications of the American Standards Association, as compared with pole sizes included in other well-known specifications such as that of the National Electric Light Association, the American Telegraph & Telephone Co. and the Western Union Telegraph Company. Bulletin No. 2 includes tables from the pole specifications of the American Standards Association, showing the dimensions of creosoted southern pine poles, as compared with those of western red cedar, chestnut and northern white cedar. Bulletin No. 3 includes the American Standards Association specifications for southern pine poles, explaining the materials, permitted defects and manufacturing requirements, and a table showing the ultimate fibre stress of southern yellow pine, as compared with the other woods mentioned above.

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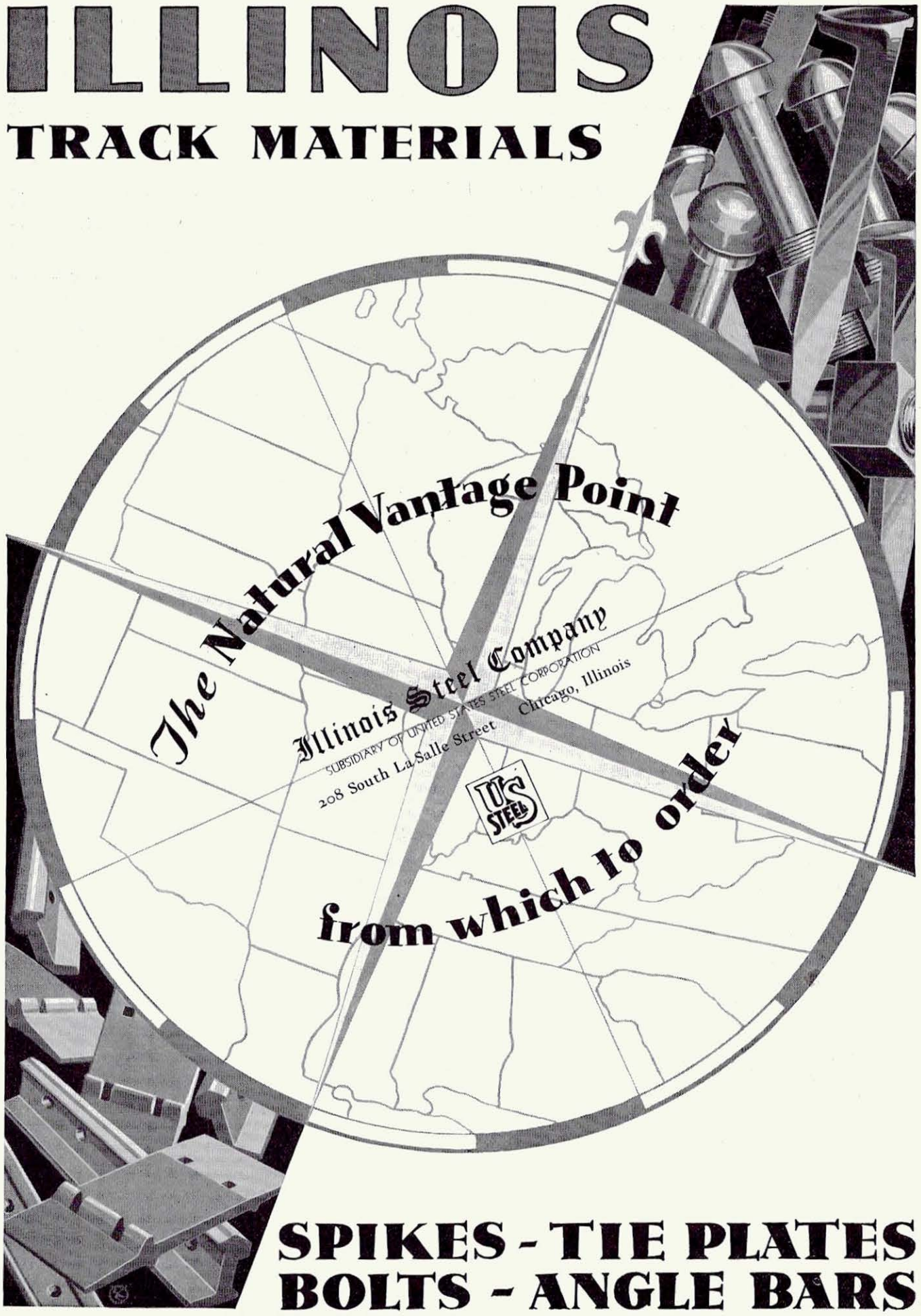
ILLINOIS
TRACK MATERIALS



Illinois Steel Company
SUBSIDIARY OF UNITED STATES STEEL CORPORATION
208 South LaSalle Street Chicago, Illinois

USS STEEL

SPIKES - TIE PLATES
BOLTS - ANGLE BARS

Construction

CANADIAN NATIONAL. — Bids were called by this company on December 3 for the construction of the superstructure of its new two-story, $500,000 passenger station at St. John, N. B. Installation of foundations, by local contractors, will be completed in the near future, and erection of fabricated steelwork by the St. John Dry Dock & Shipbuilding Co., Ltd., will start immediately thereafter.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—This company has commenced work on a project for the elevation of a mile of double track at Carthage (Cincinnati), Ohio, involving the construction of three street subways and the closing of three other streets. The project, which is estimated to cost $1,240,000, will require 18,000 cu. yd. of concrete for the subways and 3,450 lin. ft. of retaining wall, and 400 tons of reinforcing steel. Contracts for the masonry work, involving an expenditure of about $225,000, have been awarded to the Mead-Balch Construction Company, Indianapolis, Ind., and the I. D. Tuttle Company, Springfield, Ohio. The cost of the project is being shared by the railroad and the city.

NEW YORK CENTRAL.—This company has awarded to the Tuller Construction Company of Red Bank, N. J., a contract for the elimination of a grade crossing at Tarrytown road, Valhalla, N. Y. The New York Central grade crossing located on the Rotterdam Junction-Pattersonville county highway near Pattersonville station, Rotterdam, N. Y., has been designated for elimination by the Public Service Commission of New York, by diverting traffic to a new highway and a new undercrossing to be located about 800 ft. northwest of the present crossing. This railroad has also received approval, from the commission, of bids submitted by the Walsh Construction Company, Syracuse, N. Y., for the elimination of the Breakneck and Storm King grade crossings in Phillipstown and Fishkill, N. Y., and of crossings at Austin, Amherst, Tonawanda and other streets in Buffalo, N. Y. The Buffalo project, in addition to the New York Central, involves also the Canadian National, the D., L. & W. and the Erie.

NORTHERN PACIFIC.—This company has under way a number of building projects at various points in Montana, involving a total expenditure of about $90,000. Two fruit warehouses costing about $30,000 each are under construction, one at Livingston and the other at Bozeman, while an icehouse costing also about $30,000 is being constructed at Missoula. Contracts for all the structures have been awarded and the work is under way.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—A contract has been awarded to the Fruin-Colnon Contracting Company, St. Louis, Mo., for a sand embankment for the northeast railroad approach to the St. Louis Municipal bridge over the Mississippi river. This work, which will involve in excess of 250,000 cu. yd. of sand, will cost about $200,000.

Financial

ALABAMA GREAT SOUTHERN.—*Bonds.*—This company has been authorized by the Interstate Commerce Commission to procure the authentication and delivery of $500,000 of first consolidated mortgage 5 per cent bonds, in partial reimbursement for capital expenditures.

ANN ARBOR.—*Follows Wabash into Receivership.*—William S. Franklin and Frank C. Nicodemus, receivers of the Wabash, were named also as receivers of the Ann Arbor by Justice Hahn in the federal district court at Toledo, Ohio, on December 4. The appointment followed the filing of a petition by the Jennison-Wright Company, alleging indebtedness of $17,169 which the road was unable to pay. Interest payments totaling approximately $436,000, due October 31, are unpaid. The company at the end of 1930 had funded debt of $13,012,439 and capital stock of $7,250,000. Its fixed charges in that year totaled $448,870.

BOSTON & MAINE.—*Omits Dividend.*—The directors of this company, while continuing the quality dividend of $1.75 on the prior preferred stock, have omitted that of $1.25 on the first preferred A, $2 on first preferred B, $2.50 on first preferred D, $1.125 on first preferred E and $1.50 on preferred.

CENTRAL OF GEORGIA.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to pledge from time to time $11,110,000 of refunding and general mortgage 5 per cent bonds as collateral for short term notes.

CHICAGO & EASTERN ILLINOIS.—*Notes.*—This company has applied to the Interstate Commerce Commission for authority to issue and renew from time to time $7,326,764 of short-term notes and to pledge as collateral security therefor $8,852,700 of prior-lien bonds. The application states that the company had a net deficit for the first ten months of this year of $1,340,654 and that it is necessary for it to borrow to meet the principal and interest on notes, interest on its bonds, and taxes.

CHICAGO & NORTH WESTERN.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $16,000 of 4½ per cent general mortgage bonds of 1987 and $19,089,000 of 4½ per cent first and refunding mortgage bonds, series D, to be pledged and repledged as security for short term notes.

CHICAGO, WEST PULLMAN & SOUTHERN.—*Excess Income.*—The Interstate Commerce Commission has issued a tentative recapture report finding that this company earned $94,709 recapturable excess income for the years 1920 and 1922-1926.

CINCINNATI UNION TERMINAL.—*Bonds.*—This company has been authorized by the Interstate Commerce Commission to issue $12,000,000 of first mortgage 5 per cent bonds, Series B, to be sold at not less than 95 and interest, in connection with the financing of the passeger terminal. The commission, however, denied the company's application for authority to issue a like amount of short term notes.

COLORADO & SOUTHERN.—*Omits Dividend.*—Directors of this company have omitted the annual dividend of $3 on common stock, but declared that on preferred.

LOUISVILLE & NASHVILLE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Cliffside, Ky., to Irvine, 77 miles, and the line from East Bernstadt, Ky., to Jewell, 3 miles.

MISSOURI PACIFIC.—*No Dividend Action.*—Directors of this company failed to act on the $1.25 preferred dividend for the current quarter.

NEW YORK CENTRAL.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $100,000,000 of refunding and improvement mortgage 5 per cent bonds, series C, maturing in 2013, to be pledged as collateral for short-term notes. They are to reimburse the treasury for expenditures between 1922 and 1929 and are to be redeemable after 1951 at 105 and interest. The company now has outstanding $51,500,000 of short-term notes.

NEW YORK CENTRAL.—*Omits Dividend.*—The directors of this company have omitted the quarterly dividend on its common stock, thus breaking a dividend record maintained since 1870. The company has, however, disbursed $6 so far this year on this stock. Its annual rate in the first quarter was $8; in the second, $6; in the third, $4. The company is changing to a semi-annual dividend basis and dividends, hereafter, if declared, will be declared in May and November.

NEW YORK CENTRAL.—*Commercial Value of Short Line.*—Examiner J. V. Walsh of the Interstate Commerce Commission has recommended in a proposed report a finding by the commission that the commercial value of the Chicago, Attica & Southern is $215,000 and that its acquisition by the New York Central at that figure be authorized. This is one of the short lines which the commission required the N.Y.C. to offer to acquire as a condition of its approval of the lease of the Michigan Central and the Cleveland, Cincinnati, Chicago & St. Louis. A board of arbitration found the commercial value to be $362,500. The Attica company asked for a valuation of $1,500,000, and the New York Central, although it offered to acquire the property at the price named by the arbitrators, has asked the commission whether it will not be in the public interest to release it from the condition that it acquire the property.

NEW YORK, CHICAGO & ST. LOUIS.—*Bonds.*—The Interstate Commerce Commission has authorized this company to pledge and repledge during the next two years $4,500,000 of refunding mortgage 4½ per cent, series C, bond, heretofore authenticated and delivered, as security for short term notes.

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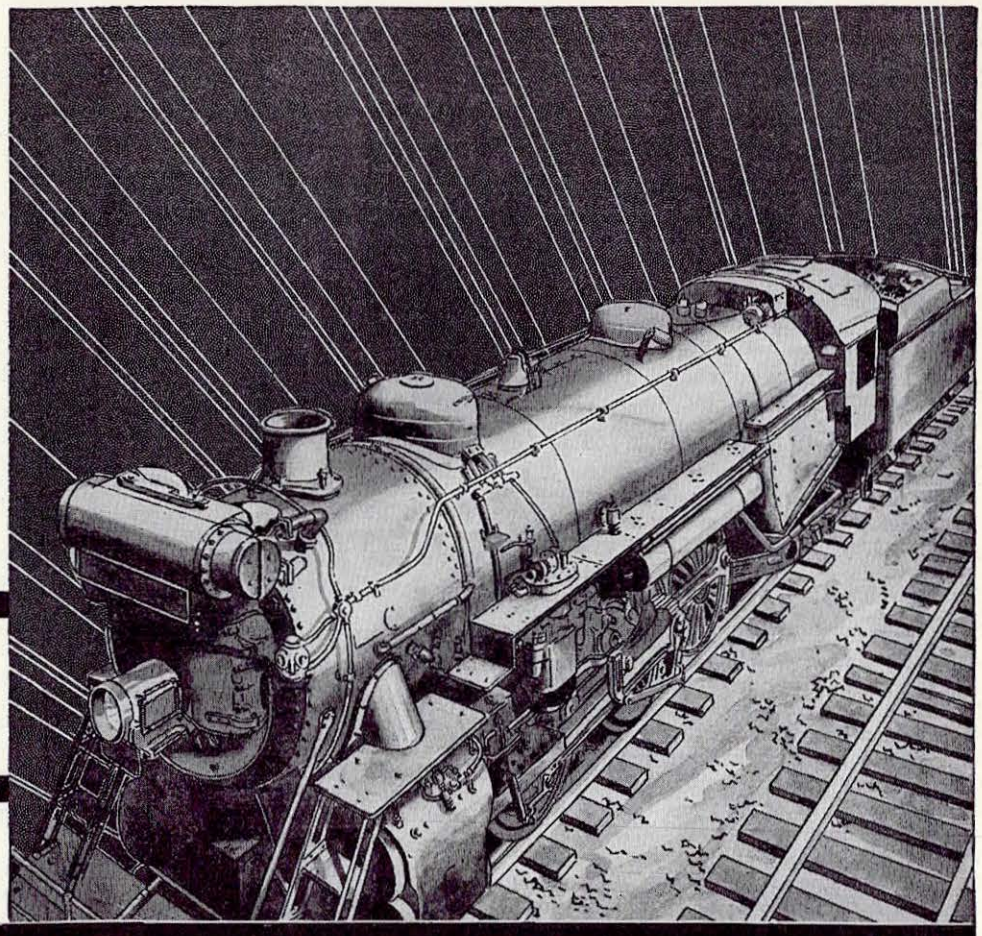
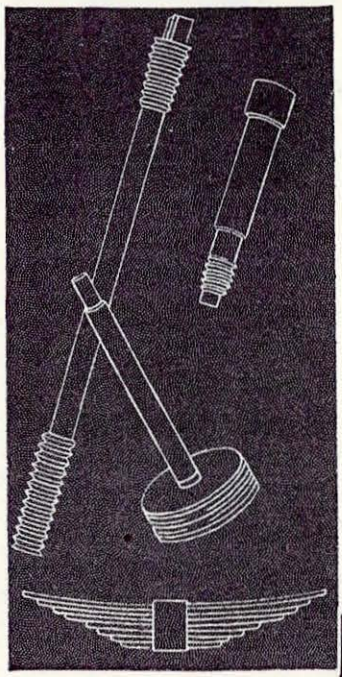
AGATHON NICKEL IRON TRADE MARK

ALLOY STEELS



are removing old limits of DESIGN



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Today many of these handicaps have been removed.

Alloy Steels and Irons, developed by Republic Steel Corporation metallurgists, are providing better resistance to corrosion, greater strength and higher fatigue resistance.

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CENTRAL ALLOY DIVISION

REPUBLIC STEEL CORPORATION

Massillon, Ohio

NEW YORK, NEW HAVEN & HARTFORD.—*Omits Dividend.*—The directors of this company have omitted the quarterly disbursement of $1 on common stock, due to the fact that $4 has already been paid this year.

NICHOLAS, FAYETTE & GREENBRIER.—*Acquisition.*—The Interstate Commerce Commission has authorized this company to acquire the lines of the Sewell Valley, the Loop & Lookout, and the Greenbrier & Eastern, in West Virginia, and the joint acquisition of further control of the lines under lease by the Chesapeake & Ohio and the New York Central. The N. F. & G. also was authorized to assume liability in respect of $300,000 first mortgage 5 per cent bonds of the Sewell Valley and to issue $7,072,051 of common stock, $3,600,000 thereof to be used in payment of an equal amount of outstanding demand promissory notes and $3,472,051 to be delivered to the three companies in payment for their lines and to be delivered by them to the C. & O. and the N. Y. C.

OREGON ELECTRIC.—*Authority for Construction and Acquisition Denied.*—The Interstate Commerce Commission has denied the application of this company for authority to construct an extension from Orville, Ore., westerly to Independence, 2.3 miles and to acquire the Valley & Siletz extending from Independence to Valsetz, 40.6 miles. The Commission at the same time dismissed an application of the Southern Pacific to acquire this property.

ST. PAUL & KANSAS CITY SHORT LINE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $3,851,500 of first mortgage 4½ per cent bonds, payable in dollars, or as much as may be necessary for conversion of similar bonds payable in sterling, under the option given the holders to exchange a bond for 200 pounds plus $30 for a $1,000 bond. On September 31 there remained outstanding 127,600 pounds of the sterling bonds.

SEABOARD AIR LINE.—*Financial Plans.*—A plan to meet the financial needs of this property during the coming months has been approved by a majority of the security holders involved and will soon be presented to the court and the Interstate Commerce Commission for approval. Under this plan, holders of equipment trust certificates maturing between October 15 last and the end of 1934 will be asked to accept receivers-certificates in lieu thereof, and the court will be asked to approve withholding interest from holders of these trusts who do not consent to the plan. The committee representing holders of $32,000,000 of divisional bonds outstanding will be asked to forego interest and principal payments for two years.

SOUTHERN PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a portion of a branch line extending from a point near Beaverton, Ore., to Bertha, 5.4 miles.

TEXAS & PACIFIC.—*Fails to Declare Common Dividend.*—Directors of this company omitted declaration of the usual dividend of $1.25 for the current quarter, but declared the regular $1.25 on the preferred.

TOLEDO, ANGOLA & WESTERN.—*Excess Income.*—The Interstate Commerce Commission has issued a tentative recapture report finding that this company earned $78,837 recapturable excess income for the years 1924-1927.

VIRGINIAN.—*Reduces Dividend.*—Directors of this company have declared a quarterly dividend of $1.50 on the common stock, thus reducing the former $8 annual basis to $6.

VIRGINIA SOUTHERN.—*Abandonment.*—The receivers have applied to the Interstate Commerce Commission for authority to abandon the line from Marion, Va., to Sugar Grove, 18 miles, formerly operated by the Marion & Rye Valley, and also the line from Sugar Grove to Troutdale, 7.85 miles.

WABASH.—*Bondholders' Committee.*—A committee representing holders of this company's refunding and general mortgage bonds has been formed under the chairmanship of John W. Stedman, vice-president of the Prudential Insurance Company. The committee has appointed T. P. Plimpton, 31 Nassau street, New York, as its secretary, who will list the holders of these bonds, deposit of which is not yet requested.

Average Prices of Stocks and of Bonds

	Dec. 8	Last week	Last year
Average price of 20 representative railway stocks..	33.78	36.43	85.28
Average price of 20 representative railway bonds..	67.38	70.30	91.13

Dividends Declared

Atchison, Topeka & Santa Fe.—Preferred, $2.50, semi-annually, payable February 1 to holders of record December 31.

Boston & Maine.—7 Per Cent Prior Preferred, $1.75, quarterly, payable January 2 to holders of record December 18.

Chicago, Burlington & Quincy.—$5.00, semi-annually, payable December 26 to holders of record December 15.

Chicago, Rock Island & Pacific.—6 Per Cent and 7 Per Cent Preferred, dividend action deferred.

Colorado & Southern.—First Preferred, $2.00, semi-annually, Second Preferred, $4.00, annually, both payable December 31 to holders of record December 18. Common Dividend omitted.

Lehigh Valley.—Preferred, $1.25, quarterly, payable January 2 to holders of record December 15.

New York, Lackawanna & Western.—1¼ per cent, quarterly, payable January 2 to holders of record December 16.

New York, New Haven & Hartford.—Preferred, $1.75, quarterly, payable January 2 to holders of record December 18.

Old Colony.—1¾ per cent, quarterly, payable January 1 to holders of record December 12.

St. Louis, Rocky Mountain & Pacific.—Common, 25c, quarterly; Preferred, $1.25, quarterly; both payable December 31 to holders of record December 15.

Virginian.—Common, $1.50, quarterly, payable December 31 to holders of record December 12.

PORTABLE SPRAY PAINTING EQUIPMENT.—The DeVilbiss Company, Toledo, Ohio, has issued a 30-page catalog, known as Catalog PC, in which the complete line of this company's spray guns, spray heads, portable spray-painting outfits and other equipment used in connection with spray painting is described and illustrated.

Railway Officers

EXECUTIVE

A. P. McLure, general manager of the Lancaster & Chester, has also been elected vice-president, with headquarters at Lancaster, S. C.

R.D. Starbuck Becomes Executive Vice-President of New York Central

Raymond D. Starbuck, vice-president in charge of operation of the New York Central Lines, has been appointed executive vice-president. Mr. Starbuck was born on July 26, 1878, at Fort Ann, N. Y., and was educated at Cornell University. He entered railway service in January, 1903, as an assistant engineer on the Michigan Central. In June of the following year he was promoted to division engineer, and a year later was appointed assistant chief engineer. In June, 1912, Mr. Starbuck was appointed special engineer to the assistant vice-president of the New York Central Lines and in April of the following year was promoted to special engineer to the vice-president. In February, 1915, he was appointed special engineer to the president, and, in January of the following year, special engineer to the vice-president of the New York Central

Raymond D. Starbuck

Railroad. In May, 1916, he was promoted to assistant to the vice-president. In February of the following year he was appointed assistant general manager of the lines west of Buffalo and during federal control served as assistant federal manager of the same lines, and, for a period as assistant regional director of the Eastern region for the Railroad Administration. At the termination of federal control he was appointed assistant vice-president of the New York Central Railroad, and later in a similar capacity also for the Kanawha & Michigan, the Kanawha & West Virginia, the Toledo & Ohio Central and the Zanesville & Western (now Ohio Central Lines). Mr. Starbuck was appointed vice-president in charge

Continued on Next Left Hand Page

BETTER FIRES

FIREBAR CORPORATION
CLEVELAND OHIO.

of operation in April, 1924. In April, 1931, his jurisdiction was extended to include the Big Four and Michigan Central.

FINANCIAL, LEGAL AND ACCOUNTING

L. O. Williams, assistant secretary and assistant treasurer of the St. Louis-San Francisco, has been elected secretary and treasurer, with headquarters as before at St. Louis, Mo., to succeed **F. H. Hamilton,** deceased. **R. M. Culp,** cashier, has been elected assistant secretary and assistant treasurer to succeed Mr. Williams. These changes will become effective on December 15.

Mr. Williams has been connected with the treasury department of the Frisco for about 33 years. He was born on June 25, 1874, at Wakefield, Mass., and entered railway service in March, 1892, as cashier and bookkeeper in the treasury department of the Lynn & Boston

L. O. Williams

Street Railway, Lynn, Mass. He served with this company until May 27, 1898, when he went with the Ft. Worth & Rio Grande (a subsidiary of the Frisco), as treasurer, at Ft. Worth, Tex. On March 21, 1902, Mr. Williams was appointed also treasurer of the Red River, Texas & Southern (also part of the Frisco), being on July 1, 1904, appointed secretary and treasurer of the Ft. Worth & Rio Grande and the St. Louis, San Francisco & Texas (also part of the Frisco), with headquarters at Ft. Worth. On May 11, 1910, he was elected assistant secretary and assistant treasurer of the Frisco, with headquarters at St. Louis, which position he held continuously until his recent election as secretary and treasurer.

OPERATING

M. J. Dooley, general manager of the Minnesota Western and the Minneapolis, Northfield & Southern, with headquarters at Minneapolis, Minn., has retired from active service because of ill health. The position of general manager has been discontinued, the duties of this position being assumed by **H. E. Pence,** president, with headquarters also at Minneapolis.

W. R. McPherson, superintendent of the Grand Junction division of the Denver & Rio Grande Western, with headquarters at Grand Junction, Colo., resumed his duties on December 1, after having been on a leave of absence for several months. **E. W. Deuel,** who has been acting superintendent at Grand Junction, has returned to the position of assistant superintendent at Salt Lake City, Utah.

J. W. Nowers, car accountant of the Eastern and Western lines of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., has been appointed to the newly-created position of superintendent of car service, with the same headquarters. **W. P. Dolan,** car accountant of the Coast lines of the Santa Fe, with headquarters at Los Angeles, Cal., has been transferred to Topeka, to succeed Mr. Nowers, and the position of car accountant at Los Angeles has been discontinued. **R. H. Weeks,** assistant to the car accountant, at Topeka, has been appointed assistant car accountant at that point, also a newly-created position.

Effective January 1, three operating divisions on the Northern Pacific will be absorbed by other divisions, with a number of resulting changes among division superintendents. The Dakota division will be absorbed by the Fargo division, and a portion of the latter division has been assigned to the St. Paul division. That part of the Montana division east of Livingston, Mont., has been assigned to the Yellowstone division, while the portion west of this point will become a part of the Rocky Mountain division. The Seattle division will be merged with the Tacoma division. **R. T. Taylor,** superintendent of the Dakota division with headquarters at Jamestown, N. D., has been transferred to the Idaho division, with headquarters at Spokane, Wash., succeeding **D. S. Colby,** who has been transferred to the Pasco division, at Pasco, Wash., where he relieves **L. F. Newton,** who has been transferred to the Tacoma division, with headquarters at Tacoma, Wash. Mr. Newton replaces **W. C. Showalter,** who has retired. **F. Brastrup,** superintendent of the Montana division, with headquarters at Livingston, Mont., has been transferred to the Fargo division, with headquarters at Fargo, N. D., where he succeeds **E. J. Hackenberg,** who also has retired. **F. R. Bartles,** superintendent of the Seattle division, with headquarters at Seattle, Wash., has been promoted to assistant general manager of the Eastern district, with headquarters at St. Paul, Minn., as noted in the *Railway Age* for November 28.

TRAFFIC

E. T. Gillooley has been appointed general agent of the passenger department of the Delaware & Hudson, with headquarters at Albany, N. Y.

W. L. Greer, assistant general agent for the St. Louis Southwestern at El Paso, Tex., has been appointed general agent at the same point, a newly-created position.

R. J. Guinane, chief clerk to the assistant freight traffic manager on the New York, Chicago & St. Louis, at Chicago, has been promoted to general agent at Kansas City, Mo., succeeding **J. L. Dease,** who has been transferred to Chicago.

Effective December 1, **Fred J. Robinson** was appointed general passenger agent of the Central of Georgia; his former position, executive general agent, was abolished and **John W. Blount** was appointed assistant general passenger agent.

E. F. Randall, general agent on the Litchfield & Madison, at St. Louis, Mo., has been appointed assistant traffic manager at that point, a newly-created position. **J. J. O'Brien,** commercial agent at St. Louis, has been promoted to general agent at that point, to succeed Mr. Randall.

MECHANICAL

N. J. Bricher, general foreman at the Aurora (Ill.) shops of the Chicago, Burlington & Quincy, has been appointed acting general car foreman at Chicago, to relieve **H. H. Harvey,** who has been granted an extended leave of absence.

MOTOR TRANSPORT

R. J. Walsh, president of the Interstate Transit Lines, a motor-coach operating subsidiary of the Union Pacific, has been elected also vice-president of Union Pacific Stages, Inc., another subsidiary of the U. P., with headquarters as before at Omaha, Neb.

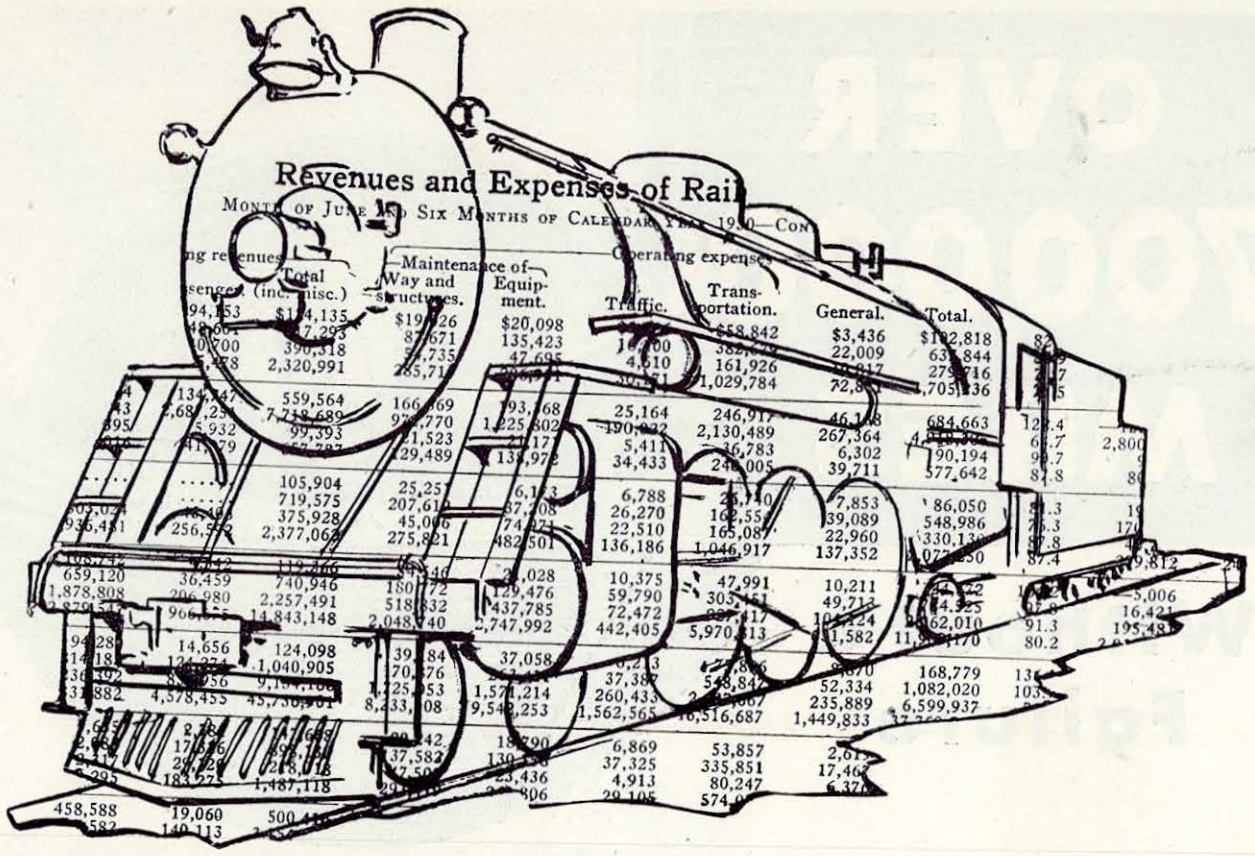
OBITUARY

C. M. Mitchell, assistant general superintendent of transportation of the Southern, Lines West, with headquarters at **Cincinnati, Ohio,** died on November 28, at that place, after a short illness.

William M. Camp, formerly southeastern superintendent of the Pullman Company, died at his home in Atlanta, Ga., on December 4, after a month's illness. Mr. Camp's retirement became effective February 15, 1930.

S. T. Blizard, who retired in 1914 as superintendent of the Michigan division of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Wabash, Ind., died at his home in Indianapolis, Ind., on November 26.

Richard Billings, president of the Woodstock Railway Company, died of heart disease on December 3, at his home in New York. He was 56 years of age. Mr. Billings was educated at the Hill School in Pottstown, Pa., and at Amherst College.



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Hub Liners
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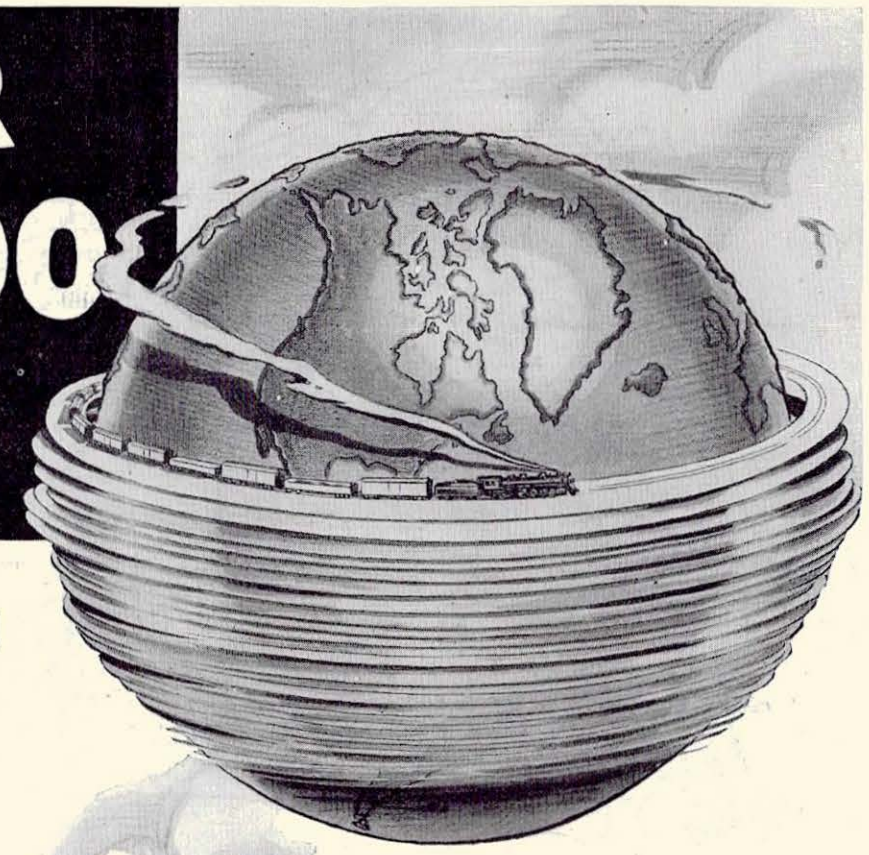
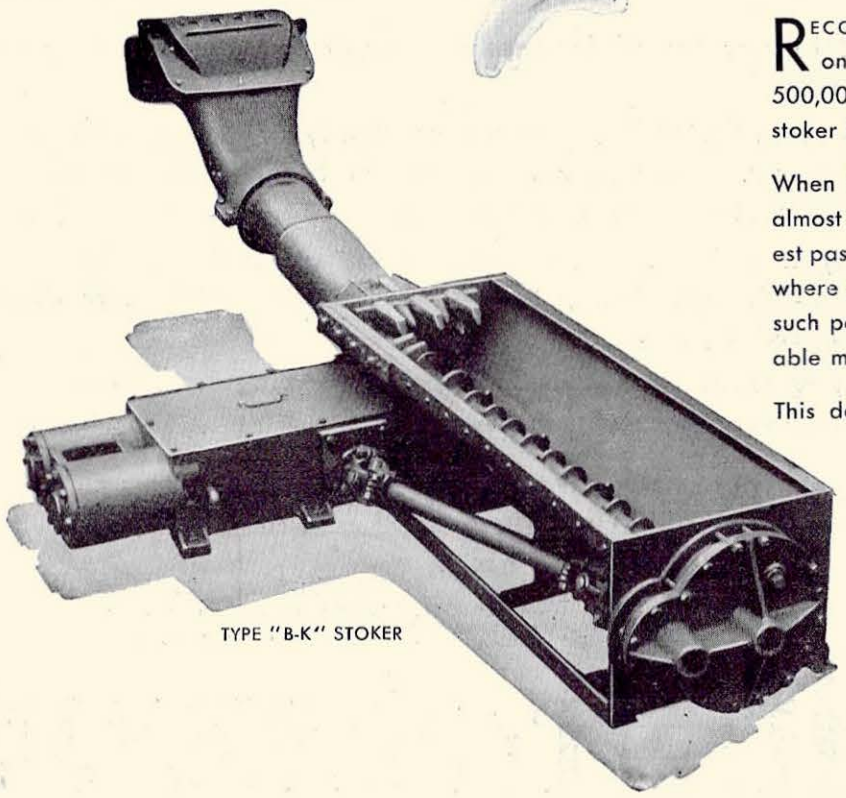


Without a Failure



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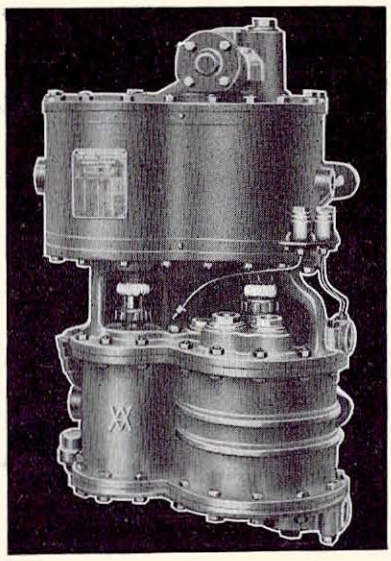

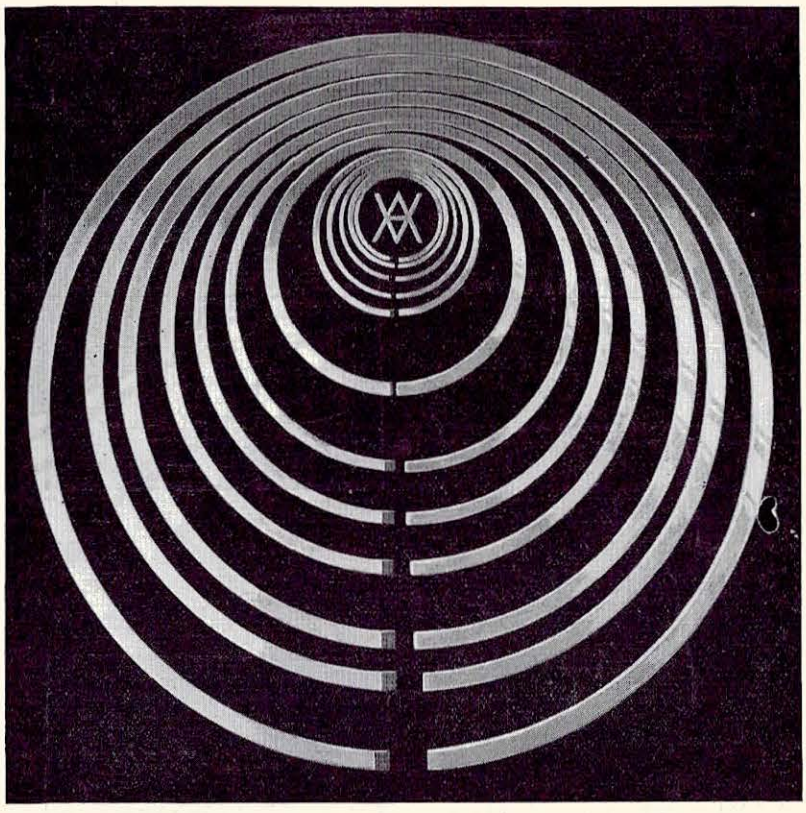

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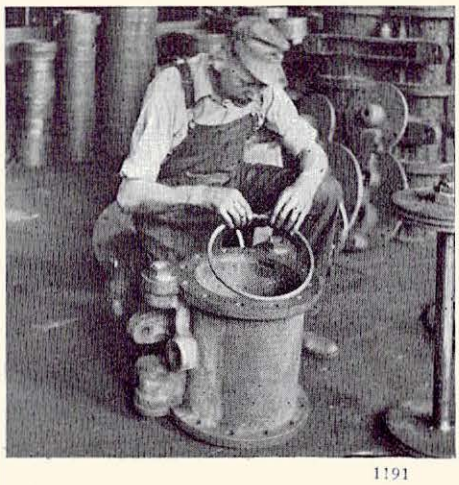
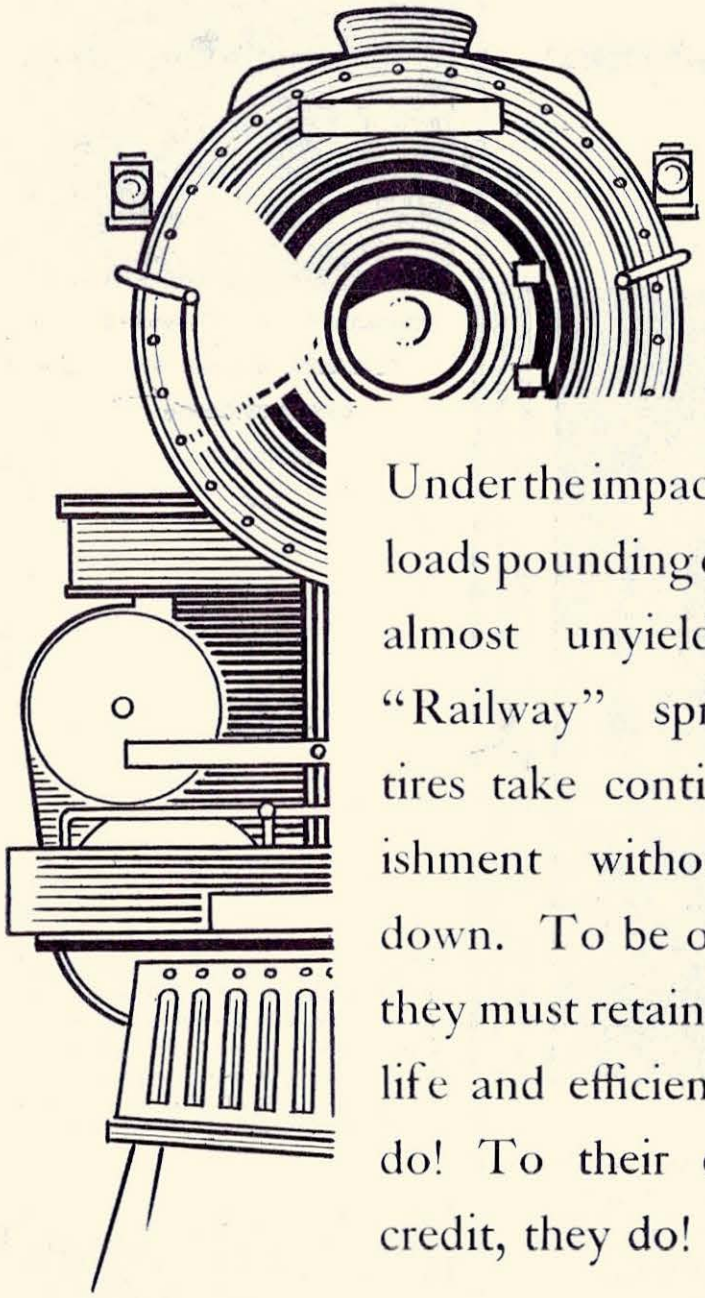


1191

WESTINGHOUSE AIR BRAKE CO.
General Office and Works, Wilmerding, Pa.

WITHSTANDING THE RIGORS OF MODERN RAILROAD OPERATION



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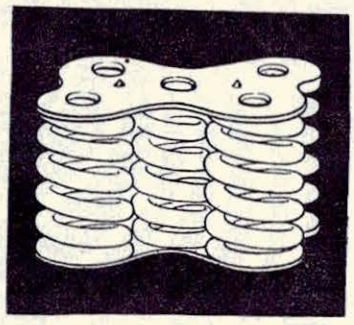

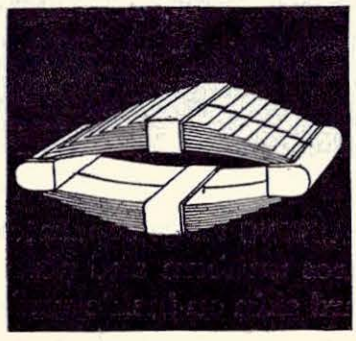

Railway Steel-Spring Company

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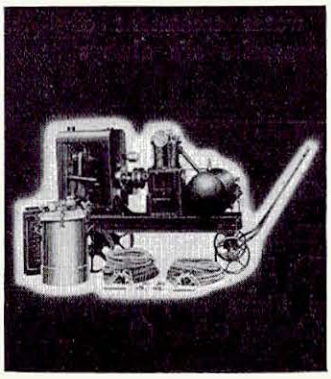

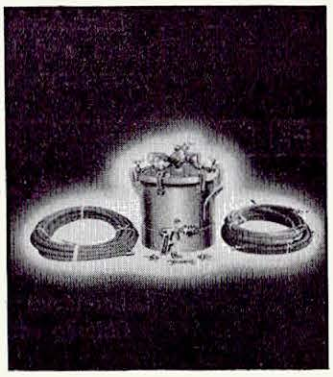

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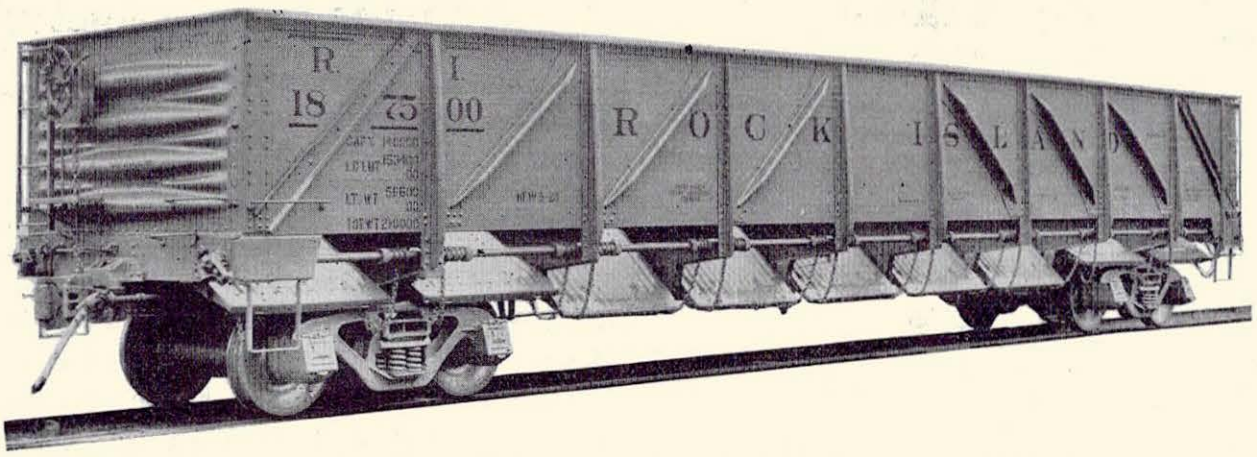

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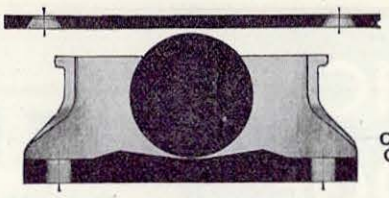

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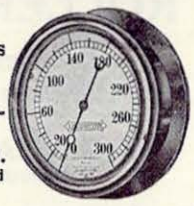

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